



## Preparation for the Caribbean Primary Exit Assessment

Guide #1 | Mathematics Multiple Choice

### Who are you?

If you are in grade 5 or 6 and will be taking the next Caribbean Primary Exit Assessment created by the Caribbean Examination Council, then this packet is for you. This packet has past exam questions which have been solved with explanations to help you learn how to solve similar questions. Completing this packet will increase your chances of passing the exam with the highest possible score.

### Who are we?

This packet was created by the Caribbean Education Project, a team of students and teachers from universities in the United States and the Caribbean. Our goal is to help you with your preparations for the next exam and to help you better understand each topic. We want you to achieve your best score on the exam. If you are not clear on concepts after reading the material, ask your parent or guardian for help. If they cannot help, ask another family member or a friend. If no one can help you, then ask your parents to send us a message on Facebook or WhatsApp or e-mail us.

- To reach us through Facebook, go on Facebook and search for “Shawn Shivdat.” Then send me a message using Facebook Messenger.
- To reach us by WhatsApp, save this number “Shawn Shivdat, +1 404-406-9638” and message me on WhatsApp.
- To reach us by e-mail, send a message to this e-mail address: [info@caribed.org](mailto:info@caribed.org).

### Keep in contact

If you are using this packet to prepare, we would like to hear from you. Please keep in touch with us so we can help you with any questions you may have. We can also provide updates when future materials are posted. Send us your name and contact information through WhatsApp, Facebook Messenger, or e-mail (listed above), or send a picture of this sheet filled out through WhatsApp, Facebook Messenger, or e-mail.

Name: \_\_\_\_\_

Parent’s phone number: \_\_\_\_\_

Parent’s e-mail address: \_\_\_\_\_

**PLEASE SHARE THIS GUIDE WITH OTHERS WHO MAY BENEFIT  
FROM USING IT.**



**How to use this guide:**

1. The following pages have a total of 50 past exam questions. Try to answer these questions in the prescribed 75 minutes. If you are not able to answer a question, skip it and go on to the next question. When you are done answering all the questions, you can return to the ones you are having trouble with during your remaining time.
2. It is okay if you were not able to answer all the questions correctly on your first try. Keep practicing the questions, and you will get better. Soon, you will be able to answer all the questions in the 75 minutes. (**TIP:** Practice makes you perfect, so keep practicing.)
3. Answers to all the questions are on the pages immediately after the practice test. When you finish answering the questions, compare your answers to the answers on these pages.
4. Mark the questions which you got wrong.
5. Read our guide to solving each question. Even for questions you got correct, read the explanations we provided because you will likely learn something from them. Our explanations provide valuable information which can provide you with additional tricks to solve other problems.
6. Always read the instructions for each question carefully before attempting to answer. Also, read the question itself carefully and pay attention to what the question is asking you to do before attempting to answer it.
7. We provide the answers to all the questions in the practice exams to help you. Do not look at the answers before you attempt the questions. If you look at the answers before, you will not learn a lot from this packet. So, do we have a deal? Okay, I heard you say yes.
8. Once you have finished reading the work kit, complete the additional practice questions. Do not refer to the attached answers until you have attempted each problem.





**CARIBBEAN EXAMINATION COUNCIL**  
**CARIBBEAN PRIMARY EXIT ASSESSMENT**  
**MATHEMATICS SPECIMEN PAPERS**  
**1 hour 15 minutes**

**Hey students**, for the purposes of practice, you can ignore the instructions listed in steps 3-5 below about shading circles on an answer sheet. We have included that here so you will be familiar with these instructions on exam day.

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY.**

1. This test has **50** questions. You have 1 hour 15 minutes to answer them.
2. Each question has four possible answers: (A), (B), and (C). Read each question carefully then choose the correct answer.
3. On your answer sheet, find the number that matches the question you intend to answer.
4. Shade the circle which has the same letter A, B, or C next to the answer you have chosen.

Sample Question

1. A quadrilateral with four equal sides and four right angles is BEST described as a

- (A) rhombus
- (B) square
- (C) rectangle

Sample Answer



The correct answer is “square”, so (B) has been shaded.

5. If you want to change your answer, erase it completely before you fill in your new choice.
6. When the supervisor tells you to begin, turn the page and work as quickly and as carefully as you can.
7. If you try a question and find that you cannot answer it, leave it and go on to the next one.  
You may return to that question later.
8. You must not use calculators for this assessment.

**DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.**



1. What is the value of the 6 in 7 685?
  - (A) 60
  - (B) 600
  - (C) 6 000
  
2. Which of the following is a composite number?
  - (A) 19
  - (B) 30
  - (C) 47
  
3. A prime number greater than 21 and less than 28 is
  - (A) 23
  - (B) 25
  - (C) 27
  
4. The highest common factor (H.C.F.) of 8, 16 and 20 is
  - (A) 2
  - (B) 4
  - (C) 8
  
5. Which of the following statements is TRUE?
  - (A)  $6 \times 6 > 9 \times 4$
  - (B)  $3 \times 8 > 6 \times 10$
  - (C)  $2 \times 7 > 15 - 3$
  
6. The difference between two numbers is 85. The smaller is 237. What is the larger number?
  - (A) 152
  - (B) 312
  - (C) 322



**Question 7** refers to the sequence:

5, 9, 13, 17, , ...

7. The missing number can be obtained by computing
- (A)  $4 \times 5 + 1$
  - (B)  $4 \times 5 - 1$
  - (C)  $4 \times 6 + 1$
8. Light M flashes every 4 minutes. Light N flashes every 10 minutes. If the lights flashed together at 6:00 a.m., at what time would they next flash together?
- (A) 6:10 a.m.
  - (B) 6:14 a.m.
  - (C) 6:20 a.m.
9.  $\frac{2}{6} + \frac{3}{6} =$
- (A)  $\frac{5}{12}$
  - (B)  $\frac{6}{12}$
  - (C)  $\frac{5}{6}$
10. What fraction of an hour is 45 minutes?
- (A)  $\frac{1}{4}$
  - (B)  $\frac{3}{4}$
  - (C)  $\frac{4}{3}$



11. Multiply  $3\frac{2}{3}$  by  $1\frac{1}{2}$ .

(A)  $3\frac{1}{3}$

(B)  $5\frac{1}{6}$

(C)  $5\frac{1}{2}$

12. The length of a water pipe is 7 m. How many  $\frac{1}{4}$  m lengths can Jane cut from the pipe?

(A)  $7\frac{1}{4}$

(B) 28

(C) 29

13. Rhonda completed her homework in  $1\frac{1}{2}$  hours. Jerry took  $2\frac{1}{4}$  hours to do the same homework. How much longer did Jerry take than Rhonda did, to complete the homework?

(A)  $\frac{3}{4}$  hours

(B)  $1\frac{1}{2}$  hours

(C)  $3\frac{3}{4}$  hours

14. Mrs. James is sewing tablecloths. Each tablecloth requires  $2\frac{1}{2}$  m of fabric. How many tablecloths can be made from 20 m of fabric?

(A) 4

(B) 8

(C) 10

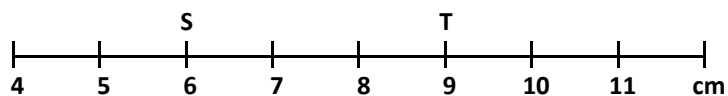


15. A length of wood is 9 feet long. Three pieces each of length 2 feet are cut off. What FRACTION of the **original** length of wood remains?
- (A)  $\frac{2}{9}$
- (B)  $\frac{1}{3}$
- (C)  $\frac{2}{3}$
16. A ribbon, 7.62 m long, is cut into six equal pieces. What is the length, in metres (m), of each piece?
- (A) 1.27
- (B) 13.62
- (C) 45.72
17. Which of the following sets of numbers is written in order of size, starting with the LARGEST?
- (A) 0.7, 0.07, 0.007, 7
- (B) 7, 0.07, 0.7, 0.007
- (C) 7, 0.7, 0.07, 0.007
18. Given that  $6.2 \times 1.8 = 11.16$ , what is the value of  $0.062 \times 18$ ?
- (A) 1.116
- (B) 11.16
- (C) 111.6
19. Sammy got 3 out of 5 questions correct. The percentage he got correct was
- (A) 25%
- (B) 40%
- (C) 60%
20. If 20% of a number is 8, what is the number?
- (A) 40
- (B) 60
- (C) 80



21. A shopkeeper bought a 20-pound box of salt fish which cost \$160. He sold the salt fish at \$10 a pound. His profit as a percentage of the cost price was
- (A) 20%  
(B) 25%  
(C) 80%
22. A school has 60 girls and 90 boys. The ratio of girls to boys is
- (A) 2:3  
(B) 3:2  
(C) 9:6
23. For every 3 votes that John received, Paula received 5. If Paula received 80 votes, how many votes did John receive?
- (A) 30  
(B) 48  
(C) 50
24. The length of a swimming pool is BEST measured in
- (A) metres  
(B) kilometres  
(C) centimetres

**Question 25** refers to the following diagram.

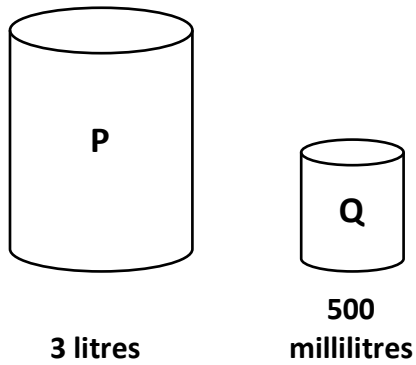


25. The length of ST, in cm, is
- (A) 3  
(B) 4  
(C) 9



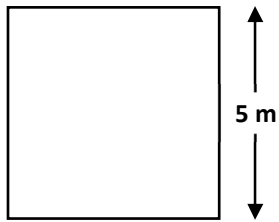


**Question 26** refers to the following diagram which shows two containers, P and Q.



26. Container P is to be filled with juice using container Q. How many of container Q will it take to fill container P?
- (A) 6
  - (B) 8
  - (C) 15

**Question 27** refers to the following diagram which shows a field in the shape of a square.

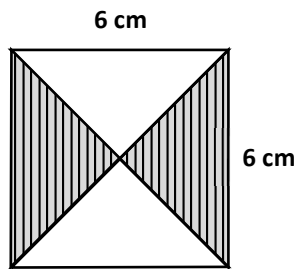


27. The area of the field, in  $m^2$ , is
- (A) 10
  - (B) 20
  - (C) 25
28. Jim can swim a distance of 100 m in 6 minutes. If he swam 600 m at the same average speed, how long did he take?
- (A) 36 minutes
  - (B) 60 minutes
  - (C) 106 minutes



29. The perimeter of a rectangle is 26 cm. One side is 7 cm. The lengths of the other three sides, in cm, are
- (A) 7, 6, 6
  - (B) 7, 7, 6
  - (C) 7, 8, 8
30. 500 g of rice was used from a packet containing 2.5 kg. What is the weight of the rice remaining in the packet?
- (A) 3 kg
  - (B) 2 kg
  - (C) 1.5 kg

**Question 31** refers to the following diagram of a square.



31. The area of the shaded part of the square is
- (A)  $\frac{6 + 6}{4}$
  - (B)  $\frac{6 \times 6}{4}$
  - (C)  $\frac{6 \times 6}{2}$

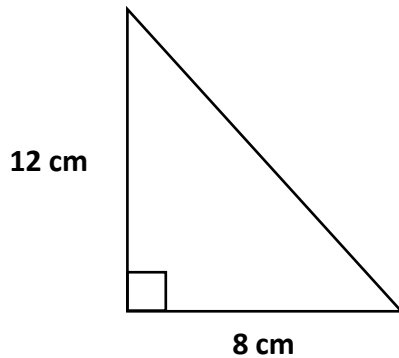
**Question 32** refers to the following table which shows the distance Dan rode on four days.

Day	Distance
Sunday	2.2 km
Monday	2700 m
Tuesday	2.3 km
Wednesday	2900 m

**32.** On which two days did Dan ride 5 km ALTOGETHER?

- (A) Sunday and Monday
- (B) Monday and Tuesday
- (C) Monday and Wednesday

**Question 33** refers to the diagram below which represents a right-angled triangle.



**33.** The area of the triangle, in  $\text{cm}^2$ , is

- (A) 20
- (B) 48
- (C) 96

**34.** Karen started a cross-country race at 10:45 a.m. She completed it at 1:15 p.m. on the same day. How long did she take to complete the race?

- (A) 2 hours 30 minutes
- (B) 3 hours 30 minutes
- (C) 9 hours 30 minutes



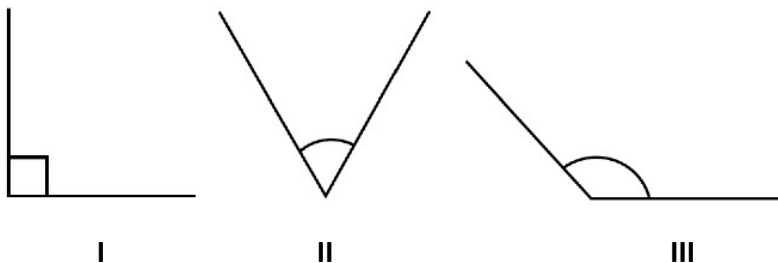
35. The height of one room is 5 m. The height of another room is 350 cm. The difference in height of the two rooms is
- (A) 150 cm
  - (B) 300 cm
  - (C) 345 cm
36. The perimeter of a square is 36 cm. What is its area, in  $\text{cm}^2$ ?
- (A) 32
  - (B) 40
  - (C) 81

**Question 37** refers to the following information.

<b>US \$1 = EC \$2.60</b>
---------------------------

37. A tourist bought TWO spice baskets at **US \$5** each. If she gave the cashier **US \$20**, what would be her change in **EC** dollars?
- (A) \$12.60
  - (B) \$13.00
  - (C) \$26.00

**Questions 38 – 39** refer to the following diagrams.



38. The order of the above angles when arranged in size from **smallest** to **largest** is
- (A) II, I, III
  - (B) III, II, I
  - (C) I, II, III



39. Which of the angles shown above is ACUTE?

- (A) I
- (B) II
- (C) III

**Question 40** refers to the following diagrams of circles with centre O.

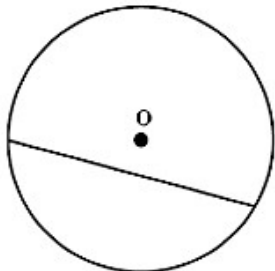


Diagram P

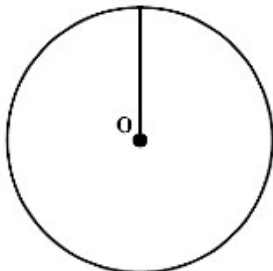


Diagram Q

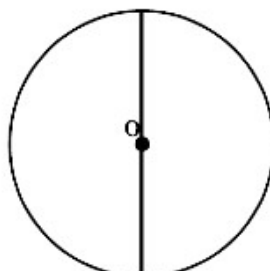


Diagram R

40. Which of the diagrams above shows the diameter of a circle?

- (A) P
- (B) Q
- (C) R

41. Triangle P has two angles which measure  $59^\circ$  and  $31^\circ$ . What kind of triangle is P?

- (A) Obtuse-angled
- (B) Acute-angled
- (C) Right-angled

**Question 42** refers to the following table.

3-D Shape	Faces	Vertices	Edges
X	6	8	12
Y	3	0	2
Z	1	0	0

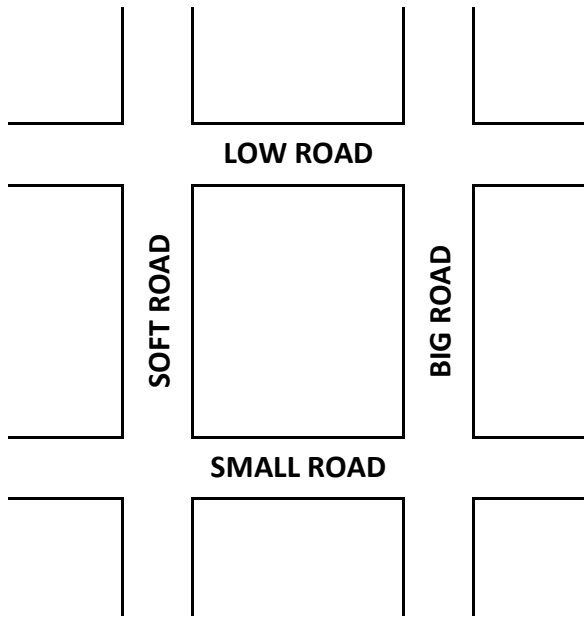
42. The three-dimensional (3-D) shapes, X, Y and Z, represent respectively

- (A) cuboid, cube, cylinder
- (B) cuboid, cylinder, sphere
- (C) cylinder, cube, sphere



43. A square is BEST described as a shape with
- (A) four equal angles and two lines of symmetry
  - (B) two pairs of parallel sides and two lines of symmetry
  - (C) four lines of symmetry and two pairs of parallel sides

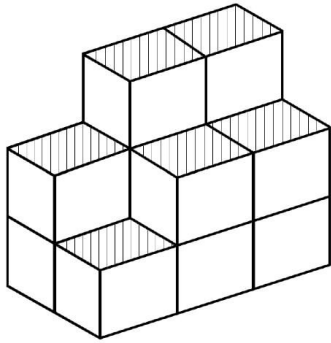
**Question 44** refers to the following diagram.



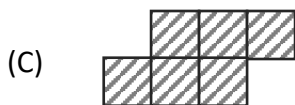
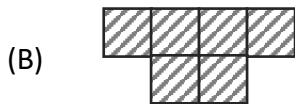
44. Which two roads are perpendicular?
- (A) Soft Road and Big Road
  - (B) Low Road and Small Road
  - (C) Soft Road and Low Road



Questions 45–46 refer to the following diagram which shows an object made up of a number of cubes.



45. Which of the diagrams below shows a top view of the object?



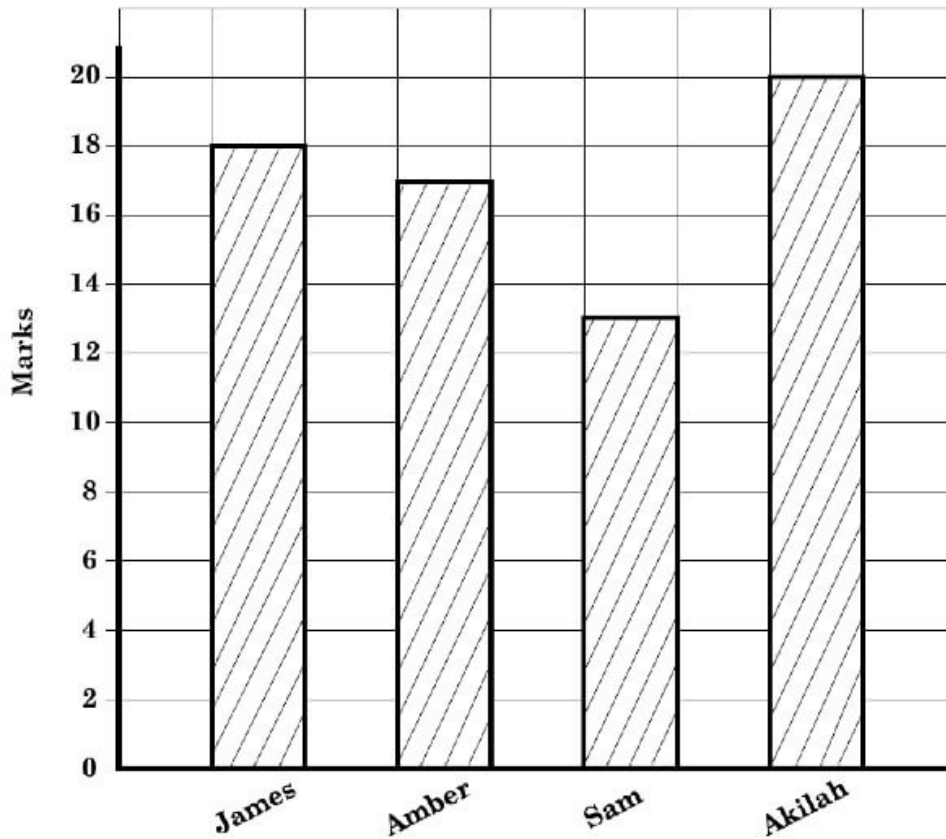
46. How many MORE cubes are needed to make the object look like a cuboid?

- (A) 4
- (B) 5
- (C) 6

47. Jack's scores in five matches were 30, 70, 40, 0 and 60. What is his average (mean) score?

- (A) 40
- (B) 50
- (C) 200

Questions 48–49 refer to the graph below which shows the marks earned by four students in a Mathematics test.



48. How many more marks did Akilah earn than Sam?

- (A) 7
- (B) 8
- (C) 12

49. What was the average (mean) mark earned?

- (A) 14
- (B) 17
- (C) 20





**Question 50** refers to the table below which shows the height and mass of three children who visited a clinic.

<b>Name</b>	<b>Height (m)</b>	<b>Mass (kg)</b>
Jane	1.5	47
Sam	1.68	63
Mary	1.45	38

**50.** Which of the following statements can be made by studying the data in the table?

- (A) A child's height is more than its mass.
- (B) The youngest child has the smallest mass.
- (C) A child's mass increases as its height increases.

**END OF TEST**

**IF YOU FINISH BEFORE TIME IS UP, CHECK YOUR WORK ON THIS ASSESSMENT**



ANSWER EXPLANATIONS

QUESTION 1 ANSWER EXPLANATION

1. What is the value of the 6 in 7 685?  
(A) 60  
(B) 600  
(C) 6 000

This problem requires you to understand the basics of place value. For the number 7 685, you want to break the numbers apart into:

Thousands	Hundreds	Tens	Ones
7	6	8	5

This means that

- the place value of 7 is 7 000
- the place value of 6 is 600
- the place value of 8 is 80
- the place value of 5 is 5

So, the value of 6 in 7 685 is 600. **Answer choice B is correct.**

QUESTION 2 ANSWER EXPLANATION

2. Which of the following is a composite number?  
(A) 19  
(B) 30  
(C) 47

A composite number is a number that has more than two factors.

For example, 12 is a composite number because  $1 \times 12 = 12$  and  $3 \times 4 = 12$ . So, the factors of 12 are **1, 12, 3, and 4**.

A prime number is a number that has exactly two factors.

For example, 19 is a prime number because only  $1 \times 19 = 19$ , so it has exactly two factors: **1 and 19**.

Here, 30 is a composite number because  $1 \times 30 = 30$ ,  $2 \times 15 = 30$ ,  $3 \times 10 = 30$ , and  $5 \times 6 = 30$ . So, 30 has more than two factors: 1, 30, 2, 15, 3, 10, 5, and 6. **Answer choice B is correct.**

QUESTION 3 ANSWER EXPLANATION

3. A prime number greater than 21 and less than 28 is  
(A) 23  
(B) 25  
(C) 27

A prime number is a number that has exactly two factors.

For example, 19 is a prime number because only  $1 \times 19 = 19$ , so it has exactly two factors: **1 and 19**.

Here, 23 is a prime number because  $1 \times 23 = 23$ , so it has exactly two factors: **1 and 23**.

25 is not a prime number because  $1 \times 25 = 25$  and  $5 \times 5 = 25$ , so it has more than two factors: 1, 25, and 5.

27 is also not a prime number because  $1 \times 27 = 27$  and  $3 \times 9 = 27$ , so it has more than two factors: 1, 27, 3, and 9.

The answer is 23. **Answer choice A is correct.**



**QUESTION 4 ANSWER EXPLANATION**

4. The highest common factor (H.C.F.) of 8, 16 and 20 is  
 (A) 2  
 (B) 4  
 (C) 8

This requires us to know the **greatest common factor**, which is called the **highest common factor** here. The most reliable way to find the greatest common factor is to write out the prime numbers that multiply together to make the whole number. The first few prime numbers, which are numbers that are that have no more than two factors, are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, and 97. You should memorize these (at least up to 53).

Write out 8 as the product of prime numbers.

$$8 = 2 \times 2 \times 2$$

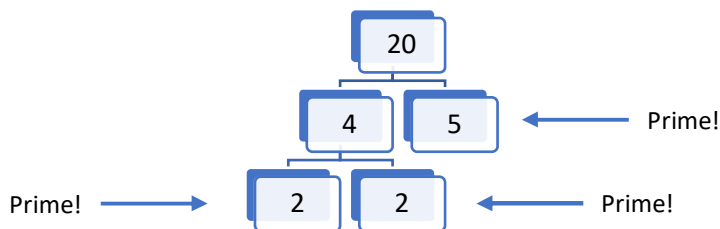
Write out 16 as the product of prime numbers.

$$16 = 2 \times 2 \times 2 \times 2$$

Write out 20 as the product of prime numbers.

$$20 = 2 \times 2 \times 5$$

If you are having trouble finding the prime factors, try taking the number and dividing it as far as you can. For example, if you can see that  $20 = 4 \times 5$ , then you can do the same for the numbers you chose.  $4 = 2 \times 2$ . Now, multiply all the prime numbers you got in the process,  $2 \times 2 \times 5$ . It may help to make a factor tree as shown below.



Once you have written out the prime factorizations for 8, 16, and 20, point out the common factors between the three sets.

$$8 = \textcircled{2} \times \textcircled{2} \times 2$$

$$16 = \textcircled{2} \times \textcircled{2} \times 2 \times 2$$

$$20 = \textcircled{2} \times \textcircled{2} \times 5$$

   = prime factors common in all numbers

The common factor here is  $2 \times 2$ . To get the greatest common factor you multiply 2 by 2 and you get 4. **Answer choice B is correct.**

**QUESTION 5 ANSWER EXPLANATION**

5. Which of the following statements is TRUE?  
 (A)  $6 \times 6 > 9 \times 4$   
 (B)  $3 \times 8 > 6 \times 10$   
 (C)  $2 \times 7 > 15 - 3$

This problem requires an understanding of inequality symbols. The four inequality symbols are:

Greater than	Less than	Greater than or Equal to	Less than or Equal to
$>$	$<$	$\geq$	$\leq$

$6 \times 6 = 36$  and  $9 \times 4 = 36$ , but 36 is not greater than 36.

$3 \times 8 = 24$  and  $6 \times 10 = 60$ , but 24 is not greater than 60.

$2 \times 7 = 14$  and  $15 - 3 = 12$ , 14 is greater than 12 so the answer is  $2 \times 7 > 15 - 3 = 12$ . **Answer choice C is correct.**



**QUESTION 6 ANSWER EXPLANATION**

6. The difference between two numbers is 85. The smaller is 237. What is the larger number?

- (A) 152
- (B) 312
- (C) 322

This problem requires you to understand naming the four basic mathematical operations. The four operations are:

Operation Name	Symbol	Signal Words
Addition	+	"Plus", "Sum of"
Subtraction	-	"Minus", "Difference of"
Multiplication	× or *	"Times", "Product of"
Division	÷ or /	"Divided by", "Quotient of"

Here, "difference" refers to subtraction. So,  $85 = \square - 237$ . To find the larger number, you have to solve to fill in the blank. To do this, you can add 237 to both sides of the equation:

$$85 + 237 = \square - 237 + 237$$

$$322 = \square$$

So, the larger number is 322. **Answer choice C is correct.**

**QUESTION 7 ANSWER EXPLANATION**

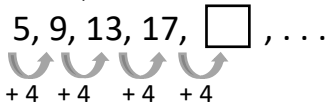
5, 9, 13, 17, , ...

7. The missing number can be obtained by computing

- (A)  $4 \times 5 + 1$
- (B)  $4 \times 5 - 1$
- (C)  $4 \times 6 + 1$

To solve this problem, you must find the pattern of the sequence first. The numbers in a sequence increase or decrease at a constant amount. To find the pattern, you can subtract the first two numbers. So,  $9 - 5 = 4$ . To make sure the sequence increases by 4 every time, you can then subtract the second and third number in the sequence. So,  $13 - 9 = 4$ .

Now that we know the pattern of the sequence is to add 4, we can find the missing number.



The missing number is  $17 + 4 = 21$ . Now, you need to find which of the answer choices equals 21.

$$\begin{aligned} \text{So, } & 4 \times 5 + 1 \\ & = 20 + 1 \\ & = 21 \end{aligned}$$

**Answer choice A is correct.**

**QUESTION 8 ANSWER EXPLANATION**

8. Light M flashes every 4 minutes. Light N flashes every 10 minutes. If the lights flashed together at 6:00 a.m., at what time would they next flash together?

- (A) 6:10 a.m.
- (B) 6:14 a.m.
- (C) 6:20 a.m.



To solve this problem, you need to find the **least common multiple**, also known as LCM. To find the LCM, you write down the multiples of each number. A multiple of a number is the product of that number with another number.

Write down the multiples of 4.

$4 \times 1$     $4 \times 2$     $4 \times 3$ , etc.

4, 8, 12, 16, 20, 24, 28, ...

Write down the multiples of 10.

$10 \times 1$     $10 \times 2$     $10 \times 3$ , etc.

10, 20, 30, 40, 50, 60, 70, ...

Point out the common numbers in each set of multiples.

4, 8, 12, 16, **20**, 24, 28, ...

10, **20**, 30, 40, 50, 60, 70, ...

The lowest common multiple between these two sets is 20. So, every 20 minutes both lights will flash together. Since the last time they flashed together was at 6:00 a.m., the next time they would flash together would be after 20 minutes, at 6:20 a.m. **Answer choice C is correct.**

#### QUESTION 9 ANSWER EXPLANATION

9.  $\frac{2}{6} + \frac{3}{6} =$

- (A)  $\frac{5}{12}$   
(B)  $\frac{6}{12}$   
(C)  $\frac{5}{6}$

This question requires you to understand how to add/subtract fractions. The steps for adding and subtracting fractions are:

1. Do the fractions have like or unlike denominators? (Denominator is the bottom part of a fraction)

For example,  $\frac{2}{3} + \frac{3}{4}$  have unlike denominators because  $3 \neq 4$ .

2. If the fractions have unlike denominators, find a common denominator. To find a common denominator, you find the least common multiple (as described in **question 8**) of the denominators.

For example, the common denominator of  $\frac{2}{3} + \frac{3}{4}$  is  $\frac{8}{12} + \frac{9}{12}$ .

3. Add or subtract the fractions by adding/subtracting the numerator. (Numerator is the top part of a fraction)

For example,  $\frac{8}{12} + \frac{9}{12} = \frac{17}{12}$ .

For this question, the fractions already have like denominators. So, you only need add the numerators.  $2 + 3 = 5 \rightarrow \frac{2}{6} + \frac{3}{6} = \frac{5}{6}$ .

**Answer choice C is correct.**

#### QUESTION 10 ANSWER EXPLANATION

10. What fraction of an hour is 45 minutes?

- (A)  $\frac{1}{4}$   
(B)  $\frac{3}{4}$   
(C)  $\frac{4}{3}$



There are 60 minutes in an hour. So, 45 minutes of an hour can also be written as 45 minutes of 60 minutes. When you put it into a fraction, it becomes  $\frac{45}{60}$ . Now, we must simplify the fraction. To simplify a fraction, we must find the greatest common factor (as described in question 4):

Write out the numerator (45) as the product of prime numbers:  $45 = 5 \times 3 \times 3$   
Write out the denominator (60) as the product of prime numbers:  $60 = 5 \times 3 \times 2 \times 2$

The factor they have in common is  $5 \times 3 = 15$ . So, 15 is the greatest common factor.

Divide both the numerator and the denominator by the greatest common factor. These will be your new numerator and new denominator.

$$\begin{aligned}45 \div 15 &= 3 \\60 \div 15 &= 4\end{aligned}$$

The new numerator is 3 and the new denominator is 4. The answer is  $\frac{3}{4}$ . **Answer choice B is correct.**

#### QUESTION 11 ANSWER EXPLANATION

11. Multiply  $3\frac{2}{3}$  by  $1\frac{1}{2}$ .

- (A)  $3\frac{1}{3}$
- (B)  $5\frac{1}{6}$
- (C)  $5\frac{1}{2}$

To multiply fractions, you need first change any mixed numbers (mixed numbers are a whole number with a fraction) into improper fractions (improper fractions are fractions with a numerator that is equal or greater than the denominator). To turn a mixed number into an improper fraction, follow these steps:

1. Write the mixed number.

For example,  $3\frac{2}{3}$

2. Multiply the denominator by the whole number and then add the numerator.

For example,  $3 \times 3 = 9$   
 $9 + 2 = 11$

3. Put the resulting number over the original denominator to produce the improper fraction.

For example,  $\frac{11}{3}$

Change  $1\frac{1}{2}$  into an improper fraction:  $1\frac{1}{2} \rightarrow 2 \times 1 = 2 \rightarrow 2 + 1 = 3 \rightarrow \frac{3}{2}$

Now that the mixed numbers are changed into improper fractions ( $\frac{11}{3}$  and  $\frac{3}{2}$ ), you can multiply the fractions by multiplying the numerators and multiplying the denominators. So,  $11 \times 3 = 33$  and  $3 \times 2 = 6$ . The answer is  $\frac{33}{6}$ , but the answer choices are in mixed number form. To change  $\frac{33}{6}$  into a mixed number, you divide the numerator by the denominator and then you put the remainder (remainder is the number remaining after dividing the numbers) over the denominator and the quotient becomes the whole number:

$$\begin{array}{r} 5 \\ 6 \overline{) 33} \\ \underline{-30} \\ 3 \end{array}$$

The quotient is 5 and the remainder is 3.

So, the improper fraction is  $5\frac{3}{6}$ . You can simplify  $\frac{3}{6}$  (refer to question 10 for how to simplify a fraction). The answer is  $5\frac{1}{2}$ .

**Answer choice C is correct**



**QUESTION 12 ANSWER EXPLANATION**

12. The length of a water pipe is 7 m. How many  $\frac{1}{4}$  m lengths can Jane cut from the pipe?

- (A)  $7\frac{1}{4}$
- (B) 28
- (C) 29

To solve this problem, you need to divide 7 by  $\frac{1}{4}$  because by dividing fractions you can tell how many fractional parts are in another number. Follow these steps to divide fractions:

1. Make any whole number into a fraction by putting 1 in the denominator.

For example, 7 becomes  $\frac{7}{1}$

2. Change the division sign into a multiplication sign.

For example,  $7 \div \frac{1}{4} \rightarrow 7 \times \frac{1}{4}$

3. Flip the second fraction.

For example,  $7 \times \frac{1}{4} \rightarrow 7 \times 4$

4. Solve.

$7 \times 4 = 28$

The answer is 28. **Answer choice B is correct.**

**QUESTION 13 ANSWER EXPLANATION**

13. Rhonda completed her homework in  $1\frac{1}{2}$  hours. Jerry took  $2\frac{1}{4}$  hours to do the same homework. How much longer did Jerry take than Rhonda did, to complete the homework?

- (A)  $\frac{3}{4}$  hours
- (B)  $1\frac{1}{2}$  hours
- (C)  $3\frac{3}{4}$  hours

This problem requires subtracting fractions (as described in question 9). Before you subtract the fractions, you need to change the mixed numbers into improper fractions (as described in question 11). Following the steps to change a mixed number into an improper fraction, you will get:

$$1\frac{1}{2} \rightarrow 2 \times 1 = 2 \rightarrow 2 + 1 = 3 \rightarrow \frac{3}{2}$$

$$2\frac{1}{4} \rightarrow 4 \times 2 = 8 \rightarrow 8 + 1 = 9 \rightarrow \frac{9}{4}$$

Now, follow the steps for subtracting fractions:

1. Do the fractions have like or unlike denominators?

$\frac{3}{2}$  and  $\frac{9}{4}$  have unlike denominators because  $2 \neq 4$ .

2. If the fractions have unlike denominators, find a common denominator. To find a common denominator, you find the least common multiple (as described in question 8) of the denominators.

The common denominator of  $\frac{3}{2}$  and  $\frac{9}{4}$  is  $\frac{6}{4}$  and  $\frac{9}{4}$ .

3. Subtract the fractions by subtracting the numerator.

$$\frac{9}{4} - \frac{6}{4} = \frac{3}{4}$$

**Answer choice A is correct.**



**QUESTION 14 ANSWER EXPLANATION**

- 14.** Mrs. James is sewing tablecloths. Each tablecloth requires  $2\frac{1}{2}$  m of fabric. How many tablecloths can be made from 20 m of fabric?
- (A) 4  
(B) 8  
(C) 10

To solve this problem, you need to divide 20 by  $2\frac{1}{2}$ . Before dividing, you need to change the mixed numbers into improper fractions (as described in question 11):

$$2\frac{1}{2} \rightarrow 2 \times 2 = 4 \rightarrow 4 + 1 = 5 \rightarrow \frac{5}{2}$$

Now, follow the steps for dividing fractions (as described in question 12):

1. Make any whole number into a fraction by putting 1 in the denominator.

$$20 \text{ becomes } \frac{20}{1}$$

2. Change the division sign into a multiplication sign.

$$\frac{20}{1} \div \frac{5}{2} \rightarrow \frac{20}{1} \times \frac{2}{5}$$

3. Flip the second fraction.

$$\frac{20}{1} \times \frac{2}{5} \rightarrow \frac{20}{1} \times \frac{2}{5}$$

4. Solve (as described in question 11).

$$\frac{20}{1} \times \frac{2}{5} = \frac{40}{5}$$

Simplify  $\frac{40}{5}$  by dividing 40 by 5. The answer is  $40 \div 5 = 8$ . **Answer choice B is correct.**

**QUESTION 15 ANSWER EXPLANATION**

- 15.** A length of wood is 9 feet long. Three pieces each of length 2 feet are cut off. What FRACTION of the **original** length of wood remains?

- (A)  $\frac{2}{9}$   
(B)  $\frac{1}{3}$   
(C)  $\frac{2}{3}$





First, you need to figure out how much is cut off. Since three pieces each of length 2 feet are cut off, you solve  $3 \times 2$  to know how many feet is cut off.  $3 \times 2 = 6$  so 6 feet is cut off from the wood.

To find how much of the wood remains, you solve  $9 - 6 = 3$ . So, 3 feet of wood remains. The original length of wood, 9 feet, goes in the denominator and the amount of wood that remains, 3 feet, goes in the numerator:  $\frac{3}{9}$ .

Simplify  $\frac{3}{9}$  (as described in question 10) by finding the greatest common factor (as described in question 4):

Write out the numerator (3) as the product of prime numbers:  $3 = 3 \times 1$   
 Write out the denominator (9) as the product of prime numbers:  $9 = 3 \times 3$

The factor they have in common is 3. So, 3 is the greatest common factor.

Divide both the numerator and the denominator by the greatest common factor. These will be your new numerator and new denominator.

$$\begin{aligned} 3 \div 3 &= 1 \\ 9 \div 3 &= 3 \end{aligned}$$

The new numerator is 1 and the new denominator is 3. The answer is  $\frac{1}{3}$ . **Answer choice B is correct.**

#### QUESTION 16 ANSWER EXPLANATION

16. A ribbon, 7.62 m long, is cut into six equal pieces. What is the length, in metres (m), of each piece?

- (A) 1.27
- (B) 13.62
- (C) 45.72

This problem requires you to divide 7.62 by 6. To divide decimals, follow these steps:  
 Write out the long division.

$$6 \overline{) 7.62}$$

Put the decimal directly above its location

$$6 \overline{) 7.62}$$

Carry out long division.

$$\begin{array}{r} 1. \\ 6 \overline{) 7.62} \\ \underline{-6} \phantom{00} \\ 1 \phantom{00} \end{array}$$

Bring down 6.

$$\begin{array}{r} 1.2 \\ 6 \overline{) 7.62} \\ \underline{-6} \phantom{00} \\ 16 \phantom{0} \\ \underline{-12} \phantom{0} \\ 4 \phantom{0} \end{array}$$

Bring down 2.

$$\begin{array}{r} 1.27 \\ 6 \overline{) 7.62} \\ \underline{-6} \phantom{00} \\ 16 \phantom{0} \\ \underline{-12} \phantom{0} \\ 42 \phantom{0} \\ \underline{-42} \phantom{0} \\ 0 \end{array}$$

The answer is 1.27. **Answer choice A is correct.**



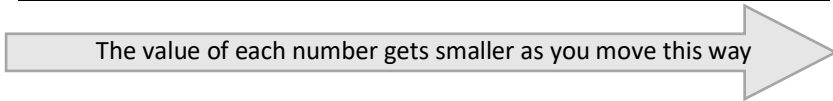
**QUESTION 17 ANSWER EXPLANATION**

17. Which of the following sets of numbers is written in order of size, starting with the LARGEST?

- (A) 0.7, 0.07, 0.007, 7
- (B) 7, 0.07, 0.7, 0.007
- (C) 7, 0.7, 0.07, 0.007

This requires an understanding of decimal place value. If you look at the number 5.142, you need to break the numbers apart into:

Ones	Decimal point	Tenths	Hundredths	Thousandths
5	.	1	4	2



This means that

- the place value of 5 is 5 (greatest value)
- the place value of 1 is .1
- the place value of 4 is .04
- the place value of 2 is .002 (smallest value)

Here, 7 is greater than 0.7 → 0.7 is greater than 0.07 → 0.07 is greater than 0.007. **Answer choice C is correct.**

**QUESTION 18 ANSWER EXPLANATION**

18. Given that  $6.2 \times 1.8 = 11.16$ , what is the value of  $0.062 \times 18$ ?

- (A) 1.116
- (B) 11.16
- (C) 111.6

When you multiply decimals, you count the decimal places first. In  $6.2 \times 1.8$ , 6.2 has 1 place after the decimal and 1.8 has 1 place after the decimal. By adding these decimal places, the product should have 2 places after the decimal. So, when you look at  $6.2 \times 1.8 = 11.16$ , the product (11.16) has two places after the decimal.

Now, look at  $0.062 \times 18$ . The number 0.062 has 3 places after the decimal but 18 has no decimal. This means that the product should have 3 places after the decimal. So, we take the previous answer (11.16) and move the decimal one place to the left so that there are 3 places after the decimal:

$$11.16 \rightarrow 1.116$$

**Answer choice A is correct.**



**QUESTION 19 ANSWER EXPLANATION**

19. Sammy got 3 out of 5 questions correct. The percentage he got correct was

- (A) 25%
- (B) 40%
- (C) 60%

This problem requires an understanding of how to convert a fraction into a percent. First, you have to make the fraction which is  $\frac{3}{5}$ .

To convert the fraction into a percentage:

- 1) Divide the numerator by the denominator.

$$\begin{array}{r} 0.6 \\ 5 \overline{) 3} \\ \underline{-0} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

- 2) Multiply by 100 or move the decimal point two places to the right.

$$0.600 \rightarrow 60.0$$

- 3) Add the percent symbol.  
60%

Answer choice C is correct.

**QUESTION 20 ANSWER EXPLANATION**

20. If 20% of a number is 8, what is the number?

- (A) 40
- (B) 60
- (C) 80

For this question, we must find the missing number:  $20\% \times \square = 8$ . To find the missing number, divide both sides of the equation by 20%. So, it becomes  $\square = 8 \div 20\%$ . To divide by a percentage, convert the percentage into a decimal first:

- 1) Remove the percent symbol.  
 $20\% \rightarrow 20$
- 2) Divide by 100 or move the decimal point two places to the left.  
 $20 \rightarrow 0.20$  or  $0.2$

Now, divide 8 by 0.2:

Move the decimal point 1 place to the right for both 0.2 and 8.

$$2 \overline{) 80}$$

Perform long division.

$$\begin{array}{r} 40 \\ 2 \overline{) 80} \\ \underline{-8} \\ 0 \\ \underline{-0} \\ 0 \end{array}$$

Answer choice A is correct.



**QUESTION 21 ANSWER EXPLANATION**

21. A shopkeeper bought a 20-pound box of salt fish which cost \$160. He sold the salt fish at \$10 a pound. His profit as a percentage of the cost price was
- (A) 20%  
 (B) 25%  
 (C) 80%

To find his profit, first multiply \$10 by 20 pounds because he has a total of 20 pounds. So,  $10 \times 20 = 200$ . He gained \$200 but he had to spend \$160 to buy the fish. So,  $200 - 160 = 40$ . His profit is \$40.

Here, you have to find the profit as a percentage of the cost price. The cost price is \$160, and the profit is \$40. So, you get the fraction  $\frac{40}{160}$ . To convert the fraction into a percentage (as described in question 19):

- 1) Divide the numerator by the denominator.

$$\begin{array}{r} 0.25 \\ 160 \overline{) 400} \\ \underline{-320} \\ 800 \\ \underline{-800} \\ 0 \end{array}$$

- 2) Multiply by 100 or move the decimal point two places to the right.

$$0.250 \rightarrow 25.0$$

- 3) Add the percent symbol.  
 25%

**Answer choice B is correct.**

**QUESTION 22 ANSWER EXPLANATION**

22. A school has 60 girls and 90 boys. The ratio of girls to boys is
- (A) 2:3  
 (B) 3:2  
 (C) 9:6

A ratio is a comparison of 2 or more quantities with the same unit. To find the ratio:

Write out the actual number

$$60:90 \rightarrow \frac{60}{90}$$

Simplify the ratio/fraction (as described in question 10)

Write out the numerator (60) as the product of prime numbers:  $60 = 5 \times 3 \times 2 \times 2$   
 Write out the denominator (90) as the product of prime numbers:  $90 = 5 \times 3 \times 2 \times 3$

The factor they have in common is  $5 \times 3 \times 2 = 30$ . So, 30 is the greatest common factor.

Divide both the numerator and the denominator by the greatest common factor. These will be your new numerator and new denominator.

$$\begin{aligned} 60 \div 30 &= 2 \\ 90 \div 30 &= 3 \end{aligned}$$

The new numerator is 2 and the new denominator is 3 which gives you the fraction  $\frac{2}{3}$ .

Write the fraction as a ratio

$$\frac{2}{3} \rightarrow 2:3$$

**Answer choice A is correct.**



**QUESTION 23 ANSWER EXPLANATION**

23. For every 3 votes that John received, Paula received 5. If Paula received 80 votes, how many votes did John receive?

- (A) 30
- (B) 48
- (C) 50

The ratio of votes that John received to votes that Paula received is 3:5. To find the number of votes John received if Paula received 80 votes, write out the ratio as a fraction:  $\frac{3}{5} = \frac{\text{John}}{\text{Paula}}$

$$\text{So, } \frac{3}{5} = \frac{\text{John}}{80}$$

Cross multiply.

$$\frac{3}{5} \times \frac{\text{John}}{80} \rightarrow 3 \times 80 = 5 \times \text{John}$$

Multiply.

$$240 = 5 \times \text{John}$$

Divide both sides of the equation by 5.

$$48 = \text{John}$$

John received 48 votes. **Answer choice B is correct.**

**QUESTION 24 ANSWER EXPLANATION**

24. The length of a swimming pool is BEST measured in

- (A) metres
- (B) kilometres
- (C) centimetres

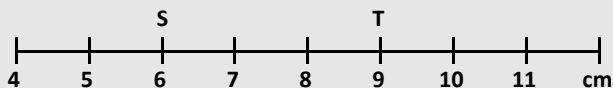
This question requires understanding of the metric system. The metric prefixes are as follows:

Prefix	Number
	1
Deci-	0.1
Centi-	0.01
Milli-	0.001
Micro-	0.000 001
Nano-	0.000 000 001
Pico-	0.000 000 000 001

Prefix	Number
	1
Deka-	10
Hecto-	100
Kilo-	1,000
Mega-	1,000,000
Giga-	1,000,000,000
Tera-	1,000,000,000,000

Think of the prefixes as numbers you should multiply by. A centimeter is used to describe small things such as a pencil. It would take too long to measure a swimming pool with centimetres, so answer choice **C** is incorrect. Answer choice **B** is describing a larger length (kilo- indicates 1,000 meters). Kilometres can be used to describe the distance you drive. A meter is about as long as a baseball bat. Answer choice **A** is the best measurement for the length of a swimming pool, so **Answer choice A is correct.**

**QUESTION 25 ANSWER EXPLANATION**



25. The length of ST, in cm, is

- (A) 3
- (B) 4
- (C) 9

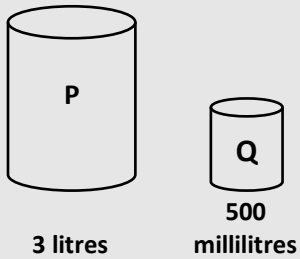
T is at 9 cm and S is at 6 cm. To find the length of ST, find the difference between the two.

$$9 - 6 = 3$$

**Answer choice A is correct.**



**QUESTION 26 ANSWER EXPLANATION**



26. Container P is to be filled with juice using container Q. How many of container Q will it take to fill container P?

- (A) 6
- (B) 8
- (C) 15

Container P and container Q are measured in different units, we need to convert one of the container's units so that both containers have the same unit. We should find out how many millilitres we have. We know from our prefixes (see question 24's answer explanation), milli means "multiply by 0.001." Therefore, there are 0.001 litres in a millilitre, or 1,000 millilitres in a liter.

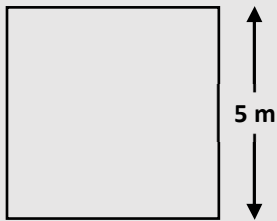
$$3 \text{ litres} \times 1000 = 3000 \text{ millilitres}$$

We know that we have 3000 millilitres in container P. To find how many container Q it will take to fill container P, divide 3000 millilitres by 500 millilitres.

$$3000 \div 500 = 6$$

It will take 6 container Q to fill container P. **Answer choice A is correct.**

**QUESTION 27 ANSWER EXPLANATION**



27. The area of the field, in  $\text{m}^2$ , is

- (A) 10
- (B) 20
- (C) 25

The area of a square is the length of one side times itself. Since  $5 \times 5 = 25$ , the area of the square is  $25 \text{ m}^2$ . **Answer choice C is correct.**

**QUESTION 28 ANSWER EXPLANATION**

28. Jim can swim a distance of 100 m in 6 minutes. If he swam 600 m at the same average speed, how long did he take?

- (A) 36 minutes
- (B) 60 minutes
- (C) 106 minutes



We know that Jim can swim a distance of 100 m in 6 minutes, so we can write that as a ratio:

$$100:6 \rightarrow \frac{100}{6} = \frac{\text{m}}{\text{minutes}}$$

$$\text{So, } \frac{100}{6} = \frac{600}{\text{minutes}}$$

Cross multiply (as described in question 23).

$$\frac{100}{6} \times \frac{600}{\text{minutes}} \rightarrow 100 \times \text{minutes} = 6 \times 600$$

Multiply.

$$100 \times \text{minutes} = 3600$$

Divide both sides of the equation by 100.

$$\text{minutes} = 36$$

Jim took 36 minutes to swim 600 m. **Answer choice A is correct.**

#### QUESTION 29 ANSWER EXPLANATION

29. The perimeter of a rectangle is 26 cm. One side is 7 cm. The lengths of the other three sides, in cm, are

- (A) 7, 6, 6
- (B) 7, 7, 6
- (C) 7, 8, 8

The perimeter of a rectangle is equal to  $2 \times (\text{length of one side}) + 2 \times (\text{length of the adjacent side})$ . You can also think of the perimeter as the sum of all of the sides. In a rectangle, sides opposite to each other have the same length, so we know that one of the other three sides of the rectangle is 7 cm. We only need to find the length of the adjacent side:

$$26 = (2 \times 7) + (2 \times \text{length of the adjacent side})$$

Multiply 2 by 7.

$$26 = 14 + (2 \times \text{length of the adjacent side})$$

Subtract 14 from both sides of the equation.

$$12 = 2 \times \text{length of the adjacent side}$$

Divide both sides of the equation by 2.

$$6 = \text{length of the adjacent side}$$

So, we know the lengths of the other three sides are 7, 6, 6. **Answer choice A is correct.**

#### QUESTION 30 ANSWER EXPLANATION

30. 500 g of rice was used from a packet containing 2.5 kg. What is the weight of the rice remaining in the packet?

- (A) 3 kg
- (B) 2 kg
- (C) 1.5 kg

The used rice and the packet are measured in different units, we need to convert the unit of the used rice so that they have the same unit. We should find out how many kilograms we have. We know from our prefixes (see question 24's answer explanation), kilo means "multiply by 1000." Therefore, there are 0.001 kg in a g, or 1,000 g in a kg.

$$500 \text{ g} \times 0.001 = 0.5 \text{ kg}$$

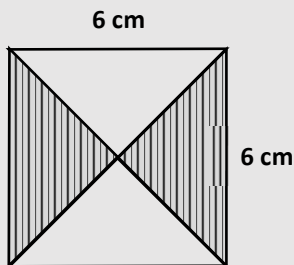
We know that 500 g of rice is the same as 0.5 kg of rice. To find weight of the remaining rice, subtract 2.5 kg by 0.5 kg.

$$2.5 - 0.5 = 2$$

The weight of the remaining rice is 2 kg. **Answer choice B is correct.**



**QUESTION 31 ANSWER EXPLANATION**



31. The area of the shaded part of the square is

- (A)  $\frac{6 + 6}{4}$
- (B)  $\frac{6 \times 6}{4}$
- (C)  $\frac{6 \times 6}{2}$

The shaded parts inside the square are triangles. The area of a triangle is equal to one-half times the base times the height, or  $\frac{1}{2} \times b \times h$ . The base is 6 cm and the height 3 cm (6 cm  $\div$  2). Therefore, since  $\frac{1}{2} \times 6 \times 3 = 9$ , the area of one triangle is 9 cm<sup>2</sup>.

There are two triangles inside the square, so  $2 \times 9 \text{ cm}^2 = 18 \text{ cm}^2$ . The total area of the shaded part of the square is 18 cm<sup>2</sup>.

$\frac{6 + 6}{4} = \frac{12}{4} = 3 \neq 18$ , so answer choice **A** is incorrect.

$\frac{6 \times 6}{4} = \frac{36}{4} = 9 \neq 18$ , so answer choice **B** is incorrect.

$\frac{6 \times 6}{2} = \frac{36}{2} = 18$ , so **Answer choice C is correct**.

**QUESTION 32 ANSWER EXPLANATION**

Question 32 refers to the following table which shows the distance Dan rode on four days.

Day	Distance
Sunday	2.2 km
Monday	2700 m
Tuesday	2.3 km
Wednesday	2900

32. On which two days did Dan ride 5 km ALTOGETHER?

- (A) Sunday and Monday
- (B) Monday and Tuesday
- (C) Monday and Wednesday





Monday and Wednesday are measured in different units from Sunday and Tuesday, we need to convert the unit of Monday and Wednesday so that they have the same unit. We should find out how much Dan rode on Monday and Wednesday in kilometres. We know from our prefixes (see question 24's answer explanation), kilo means "multiply by 1000." Therefore, there are 0.001 km in a m, or 1,000 m in a km.

$$2700 \text{ m} \times 0.001 = 2.7 \text{ km (Monday)}$$
$$2900 \text{ m} \times 0.001 = 2.9 \text{ km (Wednesday)}$$

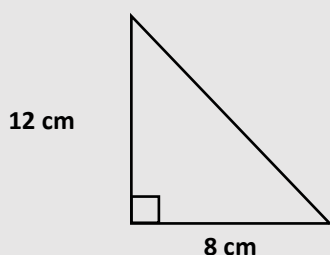
On Sunday and Monday, Dan rode  $2.2 \text{ km} + 2.7 \text{ km} = 2.9 \text{ km}$ , so answer choice **A** is incorrect.

On Monday and Wednesday, Dan rode  $2.7 \text{ km} + 2.9 \text{ km} = 5.6 \text{ km}$ , so answer choice **C** is incorrect.

On Monday and Tuesday, Dan rode  $2.7 \text{ km} + 2.3 \text{ km} = 5 \text{ km}$ , so **answer choice B is correct**.

### QUESTION 33 ANSWER EXPLANATION

**Question 33** refers to the diagram below which represents a right-angled triangle.



**33.** The area of the triangle, in  $\text{cm}^2$ , is

- (A) 20
- (B) 48
- (C) 96

The area of a triangle is equal to one-half times the base times the height, or  $\frac{1}{2} \times b \times h$ . The base is 8 cm and the height 12 cm.

Therefore, since  $\frac{1}{2} \times 8 \times 12 = 48$ , the area of the triangle is  $48 \text{ cm}^2$ .

**Answer choice B is correct.**

### QUESTION 34 ANSWER EXPLANATION

**34.** Karen started a cross-country race at 10:45 a.m. She completed it at 1:15 p.m. on the same day. How long did she take to complete the race?

- (A) 2 hours 30 minutes
- (B) 3 hours 30 minutes
- (C) 9 hours 30 minutes

To find how long it took to complete the race:

10:45 a.m. to 11:45 a.m. is 1 hour  
11:45 a.m. to 12:45 p.m. is 1 hour  
12:45 p.m. to 1:00 p.m. is 15 minutes  
1:00 p.m. to 1:15 p.m. is 15 minutes

When you add the time together,

1 hour + 1 hour = **2 hours**  
15 minutes + 15 minutes = **30 minutes**

She took 2 hours and 30 minutes, so **answer choice A is correct**.



**QUESTION 35 ANSWER EXPLANATION**

35. The height of one room is 5 m. The height of another room is 350 cm. The difference in height of the two rooms is  
 (A) 150 cm  
 (B) 300 cm  
 (C) 345 cm

The two rooms are measured in different units, we need to convert the unit of one room so that they have the same unit. We should find out how tall the room is in centimetres. We know from our prefixes (see question 24’s answer explanation), **centi** means “multiply by 0.01.” Therefore, there are 0.01 m in a cm, or 100 cm in a m.

$$5 \text{ m} \times 100 = 500 \text{ cm}$$

We know that 500 cm is the same as 5 m. To find the difference in height of the two rooms, subtract 500 cm by 350 cm.

$$500 - 350 = 150 \text{ cm}$$

**Answer choice A is correct.**

**QUESTION 36 ANSWER EXPLANATION**

36. The perimeter of a square is 36 cm. What is its area, in cm<sup>2</sup>?  
 (A) 32  
 (B) 40  
 (C) 81

The perimeter of a square is equal to  $4 \times (\text{length of one side})$ . In this case, since the perimeter is 36 cm,  
 $36 = 4 \times (\text{length of one side})$

Divide both sides of the equation by 4.

$$9 = (\text{length of one side})$$

The area of a square is the length of one side times itself. Since  $9 \times 9 = 81$ , the area of the square is 81 cm<sup>2</sup>. **Answer choice C is correct.**

**QUESTION 37 ANSWER EXPLANATION**

**US \$1 = EC \$2.60**

37. A tourist bought TWO spice baskets at **US \$5** each. If she gave the cashier **US \$20**, what would be her change in **EC** dollars?  
 (A) \$12.60  
 (B) \$13.00  
 (C) \$26.00

Two spice baskets were bought so the total cost was  $2 \times \$5 = \$10$ . She gave the cashier US \$20, so the change is  $\$20 - \$10 = \text{US } \$10$ .

We know that US \$1 = EC \$2.60, so we can write that as a ratio:

$$1:2.60 \rightarrow \frac{1}{2.60} = \frac{\text{US}}{\text{EC}}$$

$$\text{So, } \frac{1}{2.60} = \frac{10}{\text{EC}}$$

Cross multiply (as described in question 23).

$$\frac{1}{2.60} \times \frac{10}{\text{EC}} \rightarrow 1 \times \text{EC} = 10 \times 2.60$$

Multiply.

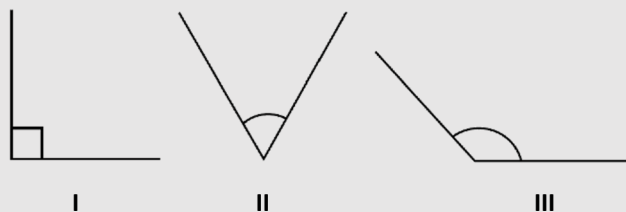
$$\text{EC} = 26$$

Her change in EC dollars is EC \$26.00. **Answer choice C is correct.**



**QUESTION 38 ANSWER EXPLANATION**

Questions 38 – 39 refer to the following diagrams.



38. The order of the above angles when arranged in size from **smallest to largest** is

- (A) II, I, III
- (B) III, II, I
- (C) I, II, III

This problem requires a basic understanding of angles. The three main types of angles are:

Type of Angle	Description	Example
Acute Angle	An angle that is less than $90^\circ$	
Right Angle	An angle that is exactly $90^\circ$	
Obtuse Angle	An angle that is greater than $90^\circ$ and less than $180^\circ$	

Here, the smallest angle is an acute angle and the largest angle is an obtuse angle. The acute angle is II, the right angle is I, and the obtuse angle is III. **Answer choice A is correct.**

**QUESTION 39 ANSWER EXPLANATION**

39. Which of the angles shown above is ACUTE?

- (A) I
- (B) II
- (C) III

As described in question 38, the acute angle is less than  $90^\circ$ . The acute angle is II. **Answer choice B is correct.**

**QUESTION 40 ANSWER EXPLANATION**

Question 40 refers to the following diagrams of circles with centre O.

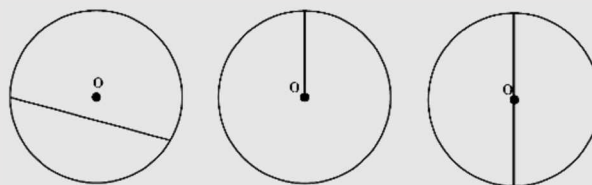


Diagram P

Diagram Q

Diagram R



40. Which of the diagrams above shows the diameter of a circle?

- (A) P
- (B) Q
- (C) R

The **diameter** is the distance across a circle through the centre. So, diagram R shows the diameter of a circle. **Answer choice C is correct.**

**QUESTION 41 ANSWER EXPLANATION**

41. Triangle P has two angles which measure  $59^\circ$  and  $31^\circ$ . What kind of triangle is P?

- (A) Obtuse-angled
- (B) Acute-angled
- (C) Right-angled

Refer to question 38. If you were to add up the two given angles of Triangle P, you have  $59 + 31 = 90$ . Since there are 180 degrees in a triangle, you should subtract  $180 - 90 = 90$ , which is the third angle of the triangle. Since the third angle of the triangle is 90 degrees, the triangle is right-angled, so **answer choice C is correct.**

**QUESTION 42 ANSWER EXPLANATION**


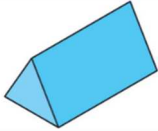
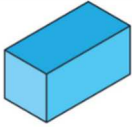
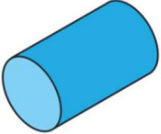
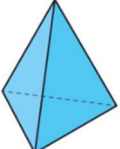
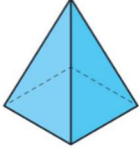
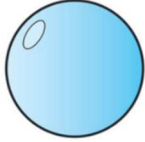

Question 42 refers to the following table.

3-D Shape	Faces	Vertices	Edges
X	6	8	12
Y	3	0	2
Z	1	0	0

42. The three-dimensional (3-D) shapes, X, Y and Z, represent respectively

- (A) cuboid, cube, cylinder
- (B) cuboid, cylinder, sphere
- (C) cylinder, cube, sphere

This problem requires a basic understanding of 3-D shapes:

<p><b>Name: Cube</b> Faces: 6 Edges: 12 Vertices: 8</p> 	<p><b>Name: Triangular Prism</b> Faces: 5 Edges: 9 Vertices: 6</p> 	<p><b>Name: Cuboid</b> Faces: 6 Edges: 12 Vertices: 8</p> 
<p><b>Name: Cylinder</b> Faces: 2 or 3 Edges: 0 or 2 Vertices: 0</p> 	<p><b>Name: Triangular Pyramid</b> Faces: 4 Edges: 6 Vertices: 4</p> 	<p><b>Name: Square Pyramid</b> Faces: 5 Edges: 8 Vertices: 5</p> 
<p><b>Name: Sphere</b> Faces: 1 Edges: 0 Vertices: 0</p> 	<p><b>Name: Cone</b> Faces: 1 or 2 Edges: 0 or 1 Vertices: 0 or 1</p> 	

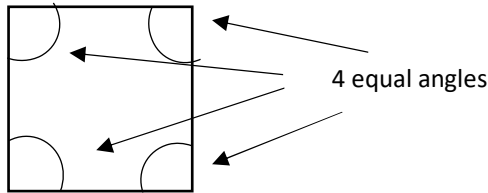
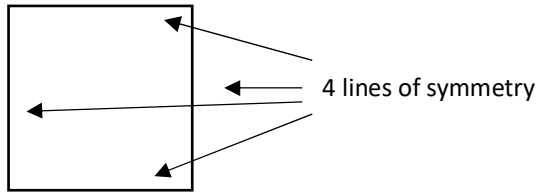
According to the chart, a cuboid has 6 faces, 8 vertices, and 12 edges, so X is a cuboid. A cylinder has 3 faces, 0 vertices, and 2 edges, so Y is a cylinder. A sphere has 1 face, 0 vertices, and 0 edges, so Z is a sphere. **Answer choice B is correct.**



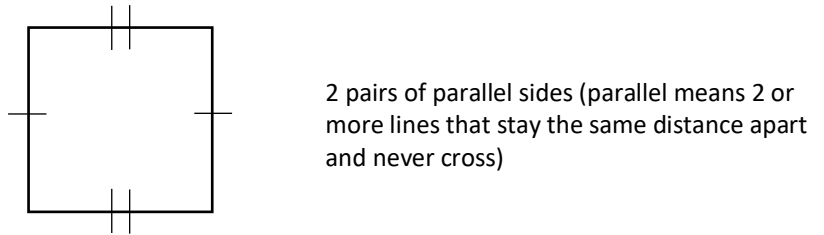
**QUESTION 43 ANSWER EXPLANATION**

43. A square is BEST described as a shape with  
 (A) four equal angles and two lines of symmetry  
 (B) two pairs of parallel sides and two lines of symmetry  
 (C) four lines of symmetry and two pairs of parallel sides

A square has:



Answer choice C is correct.



**QUESTION 44 ANSWER EXPLANATION**

Question 44 refers to the following diagram.



44. Which two roads are perpendicular?  
 (A) Soft Road and Big Road  
 (B) Low Road and Small Road  
 (C) Soft Road and Low Road

Lines that form a right angle at where they cross are perpendicular. For example,  $\perp$   
 Soft Road and Big Road are parallel (as described in question 43) because they never cross, so answer choice **A** is incorrect.

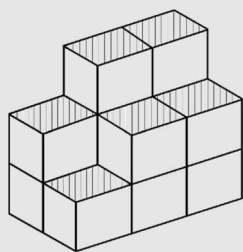
Low Road and Small Road are parallel, so answer choice **B** is incorrect.

Soft Road and Low Road are **perpendicular**, the intersection of the roads form a right angle, so **answer choice C is correct**.



**QUESTION 45 ANSWER EXPLANATION**

Questions 45–46 refer to the following diagram which shows an object made up of a number of cubes.



45. Which of the diagrams below shows a top view of the object?

- (A)
- (B)
- (C)



When you look at the object from above you will see . **Answer choice A is correct.**

**QUESTION 46 ANSWER EXPLANATION**

46. How many MORE cubes are needed to make the object look like a cuboid?

- (A) 4
- (B) 5
- (C) 6

A cuboid has 6 faces (as described in question 42). To fill in the gap in the corner, you need to add 1 more cube in the middle layer. Then, to make the top of the object of equal height, you need to add 4 more cubes to the top layer. So, in total, you need to add 5 more cubes. **Answer choice B is correct.**

**QUESTION 47 ANSWER EXPLANATION**

47. Jack’s scores in five matches were 30, 70, 40, 0 and 60. What is his average (mean) score?

- (A) 40
- (B) 50
- (C) 200

To find the average, or mean, add up all the numbers in the set and then divide by how many numbers there are in the set.

$$30 + 70 + 40 + 0 + 60 = 200$$

There were 5 matches, so divide the sum of the numbers by 5.

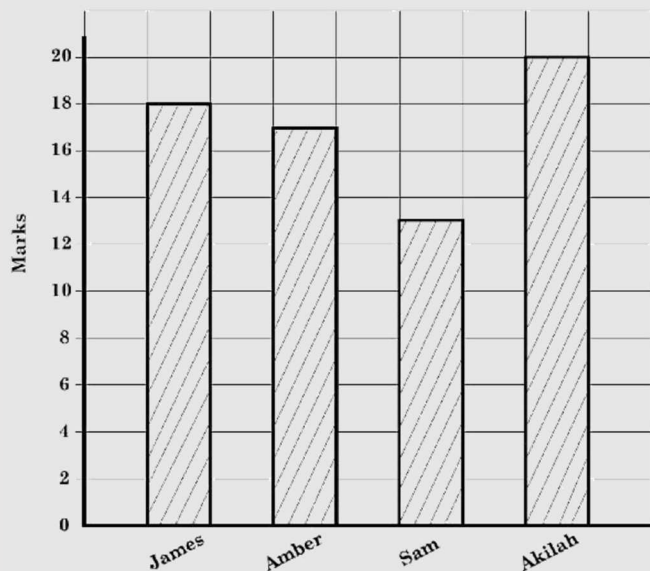
$$200 \div 5 = 40$$

**Answer choice A is correct.**



**QUESTION 48 ANSWER EXPLANATION**

Questions 48–49 refer to the graph below which shows the marks earned by four students in a Mathematics test.



48. How many more marks did Akilah earn than Sam?

- (A) 7
- (B) 8
- (C) 12

On the graph, the bar for Akilah shows that Akilah earned 20 marks. The bar for Sam shows that he earned 13 marks because the top of the bar is between 12 and 14. To find how many more marks Akilah earned, subtract Akilah’s marks by Sam’s marks:

$$20 - 13 = 7$$

Akilah earned 7 more marks than Sam. **Answer choice A is correct.**

**QUESTION 49 ANSWER EXPLANATION**

49. What was the average (mean) mark earned?

- (A) 14
- (B) 17
- (C) 20

To find the average, or mean, add up all the marks earned by each student and then divide by how many students there are. James earned 18 marks, Amber earned 17 marks, Sam earned 13 marks, and Akilah earned 20 marks.

$$18 + 17 + 13 + 20 = 68$$

There are 4 students, so divide the sum of the marks by 4.

$$68 \div 4 = 17$$

**Answer choice B is correct.**



**QUESTION 50 ANSWER EXPLANATION**

**Question 50** refers to the table below which shows the height and mass of three children who visited a clinic.

Name	Height (m)	Mass (kg)
Jane	1.5	47
Sam	1.68	63
Mary	1.45	38

**50.** Which of the following statements can be made by studying the data in the table?

- (A) A child's height is more than its mass.
- (B) The youngest child has the smallest mass.
- (C) A child's mass increases as its height increases.

Look at answer choice **A**, if a child's height is more than its mass, it means that a child's height is greater than its mass:

Jane: 1.5 m (height) is not greater than 47 kg (mass)

Sam: 1.68 m (height) is not greater than 63 kg (mass)

Mary: 1.45 m (height) is not greater than 38 kg (mass)

So, answer choice **A** is incorrect.

Look at answer choice **B**, the question does not tell us which child is the youngest, so answer choice B is incorrect.

Look at answer choice **C**, if a child's mass increases as its height increases, it means that the tallest child will have the greatest mass and the shortest child will have the smallest mass:

Sam is the tallest child:  $1.68 \text{ m} > 1.5 \text{ m (Jane)} > 1.45 \text{ m (Mary)}$

Sam also has the greatest mass:  $63 \text{ kg} > 47 \text{ kg (Jane)} > 38 \text{ kg (Mary)}$

Mary is the shortest child (1.45 m) and has the smallest mass (38 kg).

Jane is the second tallest (1.5 m) and has the second highest mass (47 kg)

So, answer choice **C** is correct.

