

Solution of Multiple – Choice Practice Paper- Mathematics

1 **1765 (D)**

$$1334 + 259 + 172 = 1765$$

2 **0.56 (B)**

Count from 2.56 to 3 which gives 0.44. Adding another 0.12 (3 to 3.12 = 0.12) to 0.44 gives 0.56.

3 **$\frac{38}{7}$ (E)**

Converting mixed fraction to improper fraction-

$$5\frac{3}{7} \text{ is } (7 \times 5) + 3 \text{ upon } 7 = \frac{38}{7}$$

4 **150 (A)**

$$\frac{6 \times 55 \times 15}{33} \quad \text{Simplifying, we get- } 2 \times 5 \times 15 = 150$$

5 **108 (D)**

To find a percentage of a number, you need to multiply the number by the percent (45) and divide by the numerator 100. $45/100 \times 240 = 108$.

6 **12 (C)**

Move 2 decimal places to right in denominator (0.04) to make it a whole number. We will need to do the same with numerator too. This gives us $48/4 = 12$.

7 **5 (A)**

As greater number remains same but smaller number is increased by 3, so difference will be decreased by 3. Hence, $P - (Q+3) = 8 - 3$ which gives difference as 5.

8 **297 (C)**

275 out of 500 gives us ratio 11:20. As the ratio remains same when total number of pupils are 540, we calculate-

$$\frac{11}{20} \times 540 = 297$$

9 **38300 (B)**

Words put in figure are 38287. As tens place is greater than 5, hundreds place digit is promoted to next while rounding off. This makes the number 38300

10 **20001 (C)**

Using formula $(a - b)^2 = (a + b)(a - b)$

$$(10001)^2 - (10000)^2 = (10001 + 10000)(10001 - 10000)$$

$$\Rightarrow 20001 \times 1 = 20001$$

11 $\frac{1}{4}$ (E)

There are total 8 portions where needle can fall. Out of total 2 are red color, so this means that there is a $\frac{2}{8}$ probability of needle to land in red. This can be simplified to $\frac{1}{4}$ by dividing the numerator and the denominator by common factor 2.

12 **Scalene Triangle (D)**

Scalene triangles have three different sides and three different angles. Rhombuses, kites, regular pentagons and isosceles triangles have at least two equal sides and two equal angles.

13 **357 (A)**

Cost price of 1 kit = $4650/15 = 310$

Selling kit at 15% profit-

$$\frac{115}{100} \times 310 = 356.5 \text{ or } 357$$

100

14 **29 (A)**

If smaller group is x , larger group is $x + 8$. This gives-

$$x + x + 8 = 50$$

$$\Rightarrow 2x + 8 = 50$$

$$\Rightarrow 2x = 50 - 8 \Rightarrow x = 42/2 = 21$$

Smaller group has 21 pupils. So, larger group has $21 + 8 = 29$ pupils.

15 **1.43 cm³ (E)**

Following $1 \text{ cm} = 10 \text{ mm}$, $\frac{1430}{10 \times 10 \times 10} = 1.43 \text{ cm}^3$

16 **0.17 (C)**

To compare all the options, convert them to decimals. We get-

0.11, 0.15, 0.7, 0.83, 0.17

Ascending order is- 0.11, 0.15, 0.17, 0.7, 0.3

0.17 falls in the middle

17 **8:18 AM (B)**

Time = Distance/ Speed $\Rightarrow \frac{1.5}{5} = 0.3$ hour or 18 minutes.

As Alice starts from home at 8:00 AM, taking 18 minutes she will reach bus stop at 8:18 AM.

18 **6 (D)**

Dogs have 2 and half symbols and fish have 1 symbol so the difference between them is 1 and half symbols. Each symbol in the pictogram is equal to 4 people. So half of a symbol is $4 \div 2 = 2$ people. 1 and half symbols is equal to 4 people + 2 people = 6 people.

19 **88 (E)**

Total score of 9 innings = (58×9) runs = 522 runs.

Required mean score of 10 innings = 61 runs.

Required total score of 10 innings = (61×10) runs = 610 runs.

Number of runs to be scored in the 10th innings

= (total score of 10 innings) - (total score of 9 innings)

= $(610 - 522) = 88$.

20 **2250 cm³ (A)**

Total water drained in 55 minutes = $50 \times 55 = 2750$ ml

Can holds 5000 ml (5 liters) water

Remaining after 55 minutes- $5000 - 2750 = 2250$ ml or 2250 cm^3

21 **48 m² (C)**

The area of a triangle is $\frac{1}{2} \times \text{base} \times \text{height}$. The playground is made up of four identical triangles. The area of one of them is $\frac{1}{2} \times 6 \times 4 = 12 \text{ m}^2$. So the area of the whole playground is $12 \times 4 = 48 \text{ m}^2$.

22 **37.5% (E)**

Square is divided into 8 equal portions. Number of shaded portions are 3.

$\frac{3}{8} \times 100 = 37.5\%$

8

23 **10 days (B)**

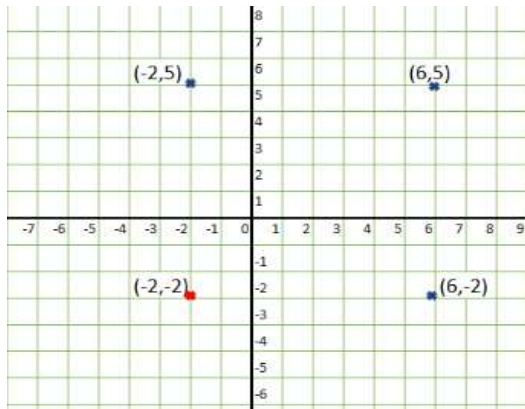
Number of students is inversely proportional to number for days for which food will last. If number of students increase, number of days for which food lasts will decrease or vice versa.

So, $\frac{125}{200} = \frac{x}{16}$ where x is number of days for which food will last after increase in pupils

$$x = \frac{125 \times 16}{200} = 10 \text{ days}$$

24 **(-2, -2) (D)**

Blue coordinates are the known coordinates. (-2, -2) will be the fourth to make a rectangle (see the diagram).



25 **210 (D)**

Using Factorial formula- $\frac{7!}{(7-3)!} = \frac{7!}{4!}$

$$= \frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{4 \times 3 \times 2 \times 1} = 7 \times 6 \times 5 = 210$$

26 **70 (A)**

$42 - 35 = 7$, $49 - 42 = 7$. This means Anna is putting 7 more cherries in the bowl from its previous one.

As 3rd bowl has $7 \times 7 = 49$ cherries, 6th bowl will have $7 \times 10 = 70$ cherries.

27 **50° (B)**

Opposite angles of a parallelogram are congruent. This means-

$$a = 180 - 130 = 50^\circ$$

28 **5 (D)**

A 5-point star is a two-dimensional polygon in the shape of a star with five points. It has 5-fold rotational symmetry i.e. every 72 degrees.

29 **32 (E)**

$$4\frac{A}{6} + \frac{A}{3} = 20$$

$$\Rightarrow \frac{24+A}{6} + \frac{A}{3} = 20$$

$$\Rightarrow \frac{24+A+2A}{6} = 20$$

$$\Rightarrow 24 + 3A = 120$$

$$\Rightarrow 3A = 96$$

$$\Rightarrow A = 32$$

30 **9 (C)**

20

Multiples of 3 up to 20 are- 3, 6, 9, 12, 15 and 18

Multiples of 5 up to 20 are- 5, 10, 15 and 20

15 is common to both. So, number of possibilities are- 9

Total number of tickets are 20

Probability that the ticket drawn has a number which is a multiple of 3 or 5 is 9/20.

31 **15 (D)**

Solve the algebraic expression-

$$\frac{2n + 1}{3} = 11$$

3

$$\Rightarrow \frac{2n + 3}{3} = 11$$

3

$$\Rightarrow 2n + 3 = 33$$

$$\Rightarrow 2n = 30$$

$$\Rightarrow n = 15$$

32 **39° C (B)**

The range is the difference between the biggest value and the smallest, so that's 26° C and -13° C.

To find the difference between them, $(26 - (-13)) = 26 + 13 = 39° C$.

(Sign Rule- '-' X '-' = +)

33 **m³ (C)**

A swimming pool is usually several meters long and wide, and it may be over a meter deep — you would be most likely to measure these distances in meters. Volume is the length \times width \times depth, so he should measure the volume in m³.

34 **64568 (A)**

A number is divisible by 8 if the number formed by the last three digits is divisible by 8. Last 3 digits in option A make 568 which is divisible by 8. Hence 64568 is also divisible by 8.

35 **£ 21.90 (C)**

Kate gets 6 boxes of 20 cards for $4 \times £4.80$ (2 she gets free, 1 on every two boxes). This gives £19.20. She also gets 12 cards for £2.70. Total cost = £19.20 + £2.70 = £21.90.

36 **(40, 8) (C)**

Assign variables, let x = first number and y = 2nd number

A number is 5 times greater than another number: 1) $x = 5y$

adding 8 to each number, the first number becomes only 3 times greater than the second:

2) $x+8 = 3(y+8)$

Substitute $x = 5y$ in equation 2 to get value of y

$5y + 8 = 3(y+8)$ distribute through the parenthesis

$5y + 8 = 3y + 24 \Rightarrow 2y + 8 = 24 \Rightarrow 2y = 16$ or $y = 8$

$x = 5y = 40$

Numbers are {40, 8}

37 **£49.35 (D)**

For 3.5 hours' work, Holly is paid $3.5 \times £7.50 = £26.25$. She is also paid 7% of £330. $7/100 \times 330 = 23.10$. So in total, Holly earned £26.25+ £23.10 = £49.35

38 **10 years (E)**

The plant needs to grow 0.5 m ($2 - 1.5 = 0.5$). It grows 0.025 m in 6 months. The plant needs to grow 0.5 m ($2 - 1.5 = 0.5$). There are 12 months in a year so it will grow $0.025 \times 2 = 0.05$ m in a year. $0.5 \text{ m} \div 0.05 \text{ m} = 10$, so it'll take the plant 10 years to grow 0.5 m.

39 **3(c + 5t) (B)**

3 dogs would need 3 dog collars and they'd need $3 \times 5 = 15$ tins of dog food. So you need to find the expression which will give you $3c + 15t$. In option B, there are 3 lots of $c + 5t$, so that's $(c + 5t) + (c + 5t) + (c + 5t) = 3c + 15t$.

40 **6.4 kg (A)**

The range is the difference between the biggest value and the smallest, so that's 74.2 kg and 67.8 kg. Count up from 67.8 to 74.2 to find the difference between them which come to 6.4 kg.

41 **(-3, -2) (C)**

To get from Point A to Point B you move 5 squares along the x-axis (horizontal axis) and 1 square down the y-axis (vertical axis). So to get from Point C to the missing point you need to follow the same path. 5 squares along the x-axis from Point C takes you to (-3, -1). 1 square down the y-axis from (-3, -1) takes you to (-3, -2).

42 **152 cm³ (D)**

Volume of cube = length × width × height. Height too must be 4 cm as cube has all its dimensions equal. So the volume = 4 cm × 4 cm × 4 cm = 64 cm³.

Volume of cuboid = length × width × height. The width of the cuboid is equal to the width of the cube, so the volume = 5.5 cm × 4 cm × 4 cm = 88 cm³

Total = 64 cm³ + 88 cm³ = 152 cm³

43 **14°F (C)**

Moscow is 41 degrees cooler than Honolulu.

Moscow's temperature is - 31 - 41 = -10°C

To convert Celsius to Fahrenheit - $10 = (F - 32) \times \frac{5}{9} \Rightarrow \frac{-10 \times 9}{5} = F - 32 \Rightarrow -18 = F - 32$

$\Rightarrow F = 32 - 18 = 14^\circ\text{F}$

44 **44°C (A)**

Last two thermometers already show temperatures in Celsius. One is 40°C and other is 44°C. Let's convert highest of Fahrenheit into Celsius to compare. Highest of the Fahrenheit temperature is 98°F. In Celsius, it will be-

$C = (98 - 32) \times \frac{5}{9} = \frac{66 \times 5}{9} = 36.67^\circ\text{C}$

Highest of the 3 Fahrenheit is also less than both the given Celsius temperatures.

So, highest temperature amongst all is 44°C.

45 **25 (D)**

40 children chose plums however 15 children chose pears. 40 - 15 = 25 more children chose plums over pears.

46 **128 (E)**

27

$$\frac{4 \times 4 \times 4 \times 4 \times 4}{6 \times 6 \times 6} = \frac{\overset{2}{4} \times \overset{2}{4} \times \overset{2}{4} \times 4 \times 4}{\underset{3}{6} \times \underset{3}{6} \times \underset{3}{6}} = \frac{2 \times 2 \times 2 \times 4 \times 4}{3 \times 3 \times 3} = \frac{128}{27}$$

47 **8% (D)**

After the hike in salary, it will be 40500.

Lets denote percentage increase by i. This gives us equation-

$$\frac{100+i}{100} \times 37500 = 40500 \Rightarrow (100+i) \times 375 = 40500$$

100

$$\Rightarrow 37500 + 375i = 40500$$

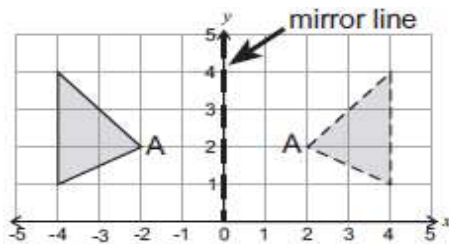
$$\Rightarrow 375i = 3000 \Rightarrow i = \frac{3000}{375}$$

375

$$\Rightarrow i = 8\%$$

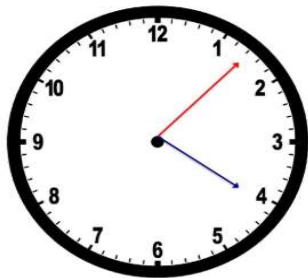
48 **(2, 2) (C)**

The y-axis is the vertical axis so the coordinates of the reflected point A are (2, 2) (see the diagram).



49 **4:07 (A)**

85° means 5 degrees less than 90°. It means a slight less than a right angle. At 4:05, clock will make a right angle, so 4:07 is approximately at 85° (see the diagram).



At all other given times, angles will not be 85°

50 **144 cm² (D)**

Area of bigger rectangle = $15 \times 16 = 240 \text{ cm}^2$

Area of smaller rectangle = $12 \times 8 = 96 \text{ cm}^2$

Area of green shaded area = Area of bigger rectangle - Area of smaller rectangle

= $240 \text{ cm}^2 - 96 \text{ cm}^2$

= 144 cm^2