

Class: 7
Subject: Mathematics
Topic: OASK1507SA102
No. of Questions: 14

Time: 1 Hrs.

M.M. 25

General Instructions

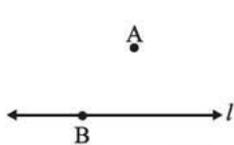
1. All questions are compulsory
2. The question paper consists of 14 questions and it is divided into three section A, B and C
3. Section A comprises of 6 question carrying 1 marks.
4. Section B comprises of 5 questions carrying 2 marks each.
5. Section C comprises of 3 questions carrying 3 marks each.
6. Question numbers 1 to 6 in section A are multiple choice questions were you are to select one correct option out of the given four.

SECTION – A

Q1. If a, b and c are integers then, according to distributive law

- (a) $a \times (b + c) = a \times b + a \times c$
- (b) $a \times (b + c) = a + b \times a + c$
- (c) $a \times (b + c) = a \times b \times a \times c$
- (d) $a \times (b + c) = a \times c - a \times b$

Q2. Look at the figure below:



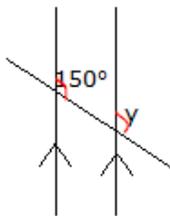
To draw a line parallel to l though A, the first step will be:

- (a) Join A to l
- (b) Join A to B
- (c) Draw perpendicular form A on l
- (d) Draw a line through A.

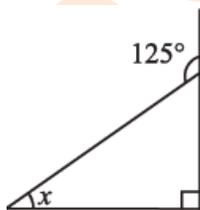
- Q3. A number is chosen at random from 1 to 5. What is the probability that the number chosen is odd?
- (a) $\frac{2}{5}$
 - (b) $\frac{3}{5}$
 - (c) $\frac{1}{4}$
 - (d) $\frac{1}{6}$

- Q4. The solution of the equation $3x + 4 = 25$ is
- (a) 7
 - (b) 8
 - (c) 9
 - (d) 6

- Q5. In the figure given below, the measure of y is



- (a) 30°
 - (b) 120°
 - (c) 130°
 - (d) 150°
- Q6. The measure of angle x , in the given figure is



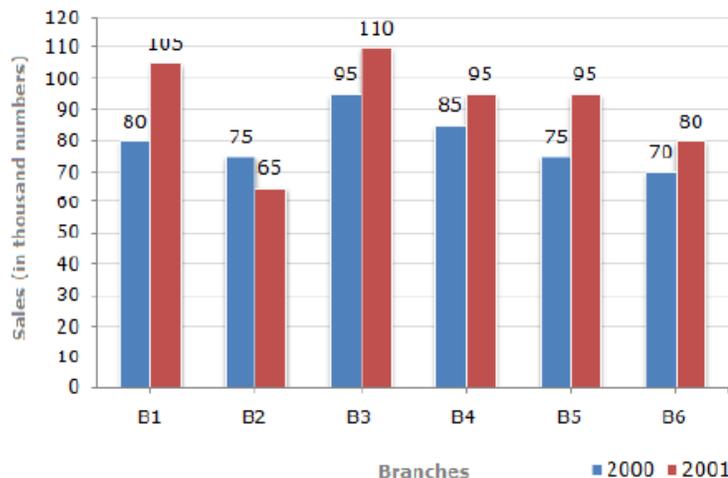
- (a) 45°
- (b) 30°
- (c) 60°
- (d) 35°

SECTION – B

- Q7. What is the measure of complement of each of the following angle?
- (a) 45°
(b) 54°
(c) 65°
- Q8. Write the following equations in statement form:
- (a) $6n + 4 = 10$
(b) $\frac{y}{7} - 3 = 9$
- Q9. Raju has solved $\frac{2}{4}$ part of an exercise while Sameer solved $\frac{1}{2}$ part of it. Who has solved more?
- Q10. How many angles are formed when 2 lines intersect?
- Q11. How many $1\frac{1}{4}$ feet long strips of ribbon can be cut from a ribbon that is $7\frac{1}{2}$ feet long?

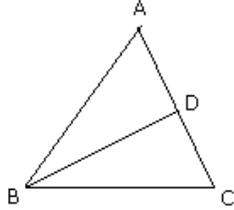
SECTION – C

- Q12. The bar graph given below shows the sales of books (in thousands) from six branches of a publishing company during two consecutive years 2000 and 2001.

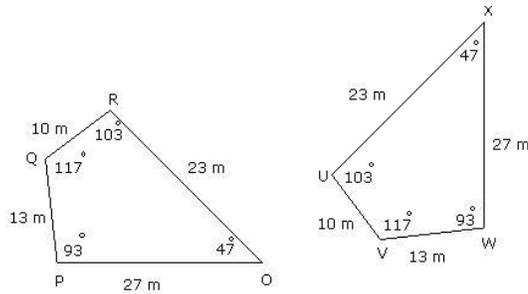


- (a) What is the ratio of the total sales of branch B2 for both years to the total sales of branch B4 for both years?
- (b) What is the average sale of all the branches (in thousands numbers) for the year 2000?
- (c) Total sales of branches B6 for both the years is what percentage of the total sales of branches B3 for both the years?

Q13. Let ABC be an isosceles triangle in which $AB = AC$ and BD is perpendicular to AC. Then, prove that $BD^2 - CD^2 = 2AD \cdot CD$



Q14. Name all the corresponding parts of the congruent figure given below:



SECTION – A

Solution: 1.

(a)

$$a \times (b + c) = a \times b + a \times c$$

Solution: 2.

(b)

Solution: 3.

(b)

A number is chosen from numbers 1 to 5.

Old numbers are 1, 3, 5.

Required probability = Number of ways to choose an odd number / total number of numbers
 = $3/5$

Solution: 4.

(a)

$$3x + 4 = 25$$

Transposing 4 to R.H.S, we get

$$3x + 25 - 4$$

$$3x = 21$$

Dividing both sides by 3, we get

$$X = 7$$

Solution: 5.

Since, the angle measuring 150° and y are corresponding angles. Therefore, $y = 150^\circ$ (As the lines are parallel, corresponding angles are equal)

Solution: 6.

(d)

We know that the measures of an exterior angle of a triangle are equal to the sum of its two opposite interior angles.

$$\text{So, } x + 90^\circ = 125^\circ$$

$$\text{Therefore, } x = 35^\circ$$

SECTION – B

Solution: 6.

To find the complement of each of the given angle, we have to subtract them from 90° , since the sum of two complementary angles is 90° .

(a) 45°

$$\text{Complementary angle of } 45^\circ = 90^\circ - 45^\circ = 45^\circ$$

(b) 54°

$$\text{Complementary angle of } 54^\circ = 90^\circ - 54^\circ = 36^\circ$$

(c) 65°

$$\text{Complementary angle of } 65^\circ = 90^\circ - 65^\circ = 25^\circ$$

Solution: 8.

(a) $6n + 4 = 10$

Statement:

For $6n$, Six times of a number n

For $6n + 4$, Six times of a number n added to 4

Thus, for $6n + 4 = 10$, the final statement is

"Six times of a number n added to 4 gives 10".

(b) $\frac{y}{7} - 3 = 9$

Statement:

For $\frac{y}{7}$, one-seventh of a number y

For $\frac{y}{7} - 3$, 3 subtracted from one-seventh of a number y

Thus, for $\frac{y}{7} - 3 = 9$, the final statement is

"3 subtracted from one-seventh of a number y gives 9".

Solution: 9.

$\frac{2}{4}$ part of the exercise is solved by Raju.

When $\frac{2}{4}$ is converted into lowest form, we get

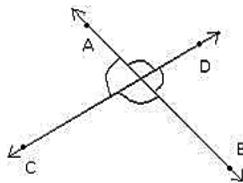
$$\frac{2}{4} = \frac{2 \div 2}{4 \div 2} = \frac{1}{2}$$

which is same as part of exercise solved by Sameer.

Thus, both have solved same part of the exercise.

Solution: 10.

When two line intersect the following figure is formed. This shows that 4 angles are formed.



Solution: 11.

Divide the total length of ribbon by the length of each strip of ribbon that is cut from it to get the total number of ribbon strips.

$$\begin{aligned}\text{So, divide } 7\frac{1}{2} \text{ by } 1\frac{1}{4} \\ &= 7\frac{1}{2} \div 1\frac{1}{4} \\ &= \frac{15}{2} \div \frac{5}{4} \\ &= \frac{15}{2} \times \frac{4}{5} \\ &= \frac{3}{1} \times \frac{2}{1} = \frac{3 \times 2}{1} = \frac{6}{1} = 6\end{aligned}$$

Thus, 6 strips can be cut from the ribbon.

SECTION – C

Solution: 12.

(1) Sales of branch B2 for both years = $75 + 65 = 140$
Sales of branch B4 for both years = $85 + 95 = 180$
Required ratio = $\frac{140}{180} = \frac{7}{9} = 7:9$

(2) Average sales of all the six branches (in thousand numbers) for the year 2000
 $= \frac{1}{6} \times (80 + 75 + 95 + 85 + 75 + 70) = 80$

(3) Total sales of branch B6 for both the years = $70 + 80 = 150$
Total sales of branch B3 for both the years = $95 + 110 = 205$
Required percentage = $\left(\frac{150}{205} \times 100\right)\% = 73.17\%$

Solution: 13.

Since, ADB is a right-angled triangle.
 $AD^2 + BD^2 = AB^2$
 $AD^2 + BD^2 = AC^2$ [given, $AB = AC$]
 $AD^2 + BD^2 = (AD + CD)^2$
 $AD^2 + BD^2 = AD^2 + CD^2 + 2AD \cdot CD$
[Subtract AD^2 from both sides]
 $BD^2 = CD^2 + 2AD \cdot CD$
[Subtract CD^2 from both sides]
 $BD^2 - CD^2 = 2AD \cdot CD$
Thus, $BD^2 - CD^2 = 2AD \cdot CD$

Solution: 14.

Given that, both the figures are congruent.

Corresponding sides:

$OP \leftrightarrow WX$; $OR \leftrightarrow UX$; $QR \leftrightarrow UV$; $QP \leftrightarrow VW$

Corresponding vertices:

$O \leftrightarrow X$; $P \leftrightarrow W$; $Q \leftrightarrow V$; $R \leftrightarrow U$

Corresponding angles:

$\angle O \leftrightarrow \angle X$; $\angle P \leftrightarrow \angle W$; $\angle Q \leftrightarrow \angle V$; $\angle R \leftrightarrow \angle U$

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