Success Key Worksheet

Std: Class 10 (Eng. Medium) **Ch.1 Similarity** **Time:1 Hr.**

Daily Practice Paper 1

Date: **Subject: Mathematics-2** **Max Marks: 25**

Q.1) Choose the correct alternative answer for each of the following question: **25**

1) In a ΔABC, perpendicular AD from A on BC meets BC at D. If BD = 8 cm, DC = 2 cm and AD = 4 cm, then_____.
(a) ΔABC is isosceles (b) ΔABC is equilateral
(c) AC = 2AB (d) ΔABC is right-angled at A

2) If ΔABC is an equilateral triangle such that AD ⊥ BC, then AD^2 = _____.
(a) 3/2 DC^2 (b) 2 DC^2 (c) 3 CD^2 (d) 4 DC^2

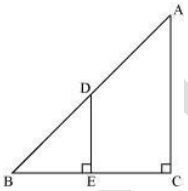
3) The areas of two similar triangles ΔABC and ΔDEF are 144 cm^2 and 81 cm^2 respectively. If the longest side of larger ΔABC be 36 cm, then. The longest side of the smaller triangle ΔDEF is :_____.
(a) 20 cm (b) 26 cm (c) 27 cm (d) 30 cm

4) Two isosceles triangles have equal angles and their areas are in the ratio 16 : 25, The ratio of their corresponding heights is :_____
(a) 4 : 5 (b) 5 : 4 (c) 3 : 2 (d) 5 : 7

5) The ratio of the areas of two triangles with equal heights is equal to the ratio of their corresponding _____.
(a) bases (b) height (c) altitude (d) median

6) The ratio of the areas of two triangles with equal bases is equal to the ratio of their corresponding _____.
(a) bases (b) height (c) altitude (d) median

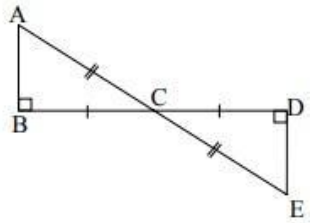
7) In the given figure, AC = 12 cm, DE = 8 cm, and BC = 9 cm.



What is the length of EC?
(a) 2 cm (b) 3 cm (c) 4 cm (d) 5 cm

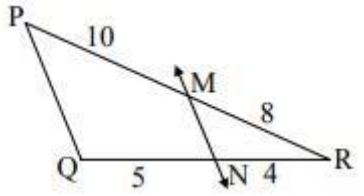
8) If ΔABC ~ ΔRQP, ∠A = 50°, ∠B = 60°, the value of ∠P is _____.
(a) 60° (b) 50° (c) 40° (d) 30°

9) State the test by which the given triangles are similar.



(a) SSS (b) AAA (c) SAS (d) ASA

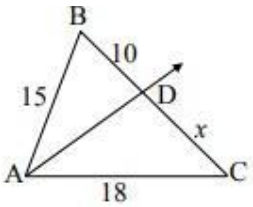
10) In the below figure, PM = 10, MR = 8, QN = 5, NR = 4. Then which of the following is correct?



(a) line MN is parallel to side PQ
(b) line MN is not parallel to side PQ
(c) Sometimes line MN is parallel to side PQ
(d) None of these

11) D and E are respectively the midpoints on the sides AB and AC of a triangle ABC and BC = 12 cm. If DE || BC, then the length of DE (in cm) is_____
(a) 2.5 (b) 3 (c) 5 (d) 6

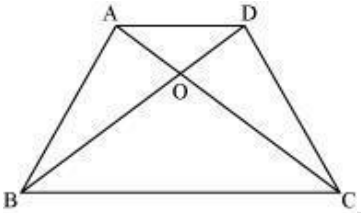
12) In the below figure, Ray AD is the angle bisector of ∠ BAC of ΔABC. From the given information find value of x.



(a) 12 (b) 14 (c) 15 (d) 16

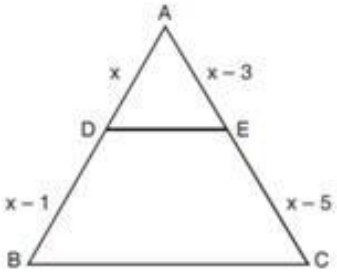
13) The length of the hypotenuse of an isosceles right triangle whose one side is 4√2 cm is_____
(a) 12 cm (b) 8 cm (c) 8√2 cm (d) 12√2 cm

14) The given figure shows a trapezium ABCD, where AD || BC. The diagonals AC and BD intersect at O. Also, BC = 3AD and ar (ΔAOB) = 3 ar (ΔAOD)



What is the ratio of the areas of ΔABD and ΔBCD?
(a) 1:3 (b) 1:4 (c) 1:7 (d) 1:9

15) In ΔABC, DE || BC. In the figure the value of x is_____.



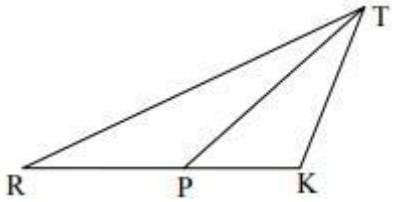
(a) 1 (b) 3 (c) – 1 (d) – 3

16) If ΔABC ~ ΔPQR such that AB = 3 cm, BC = 4 cm, CA = 5 cm, PQ = 1.5 cm, and QR = 2 cm, then what is the length of PR?
(a) 5 cm (b) 3 cm (c) 2.5 cm (d) 1.4 cm

17) Base of a triangle is 6 and height is 5. Base of another triangle is 10 and height is 9. Find the ratio of areas of these triangles
(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{2}{6}$ (d) Both (a) and (c)

18) The ratio of the areas of two triangles with the equal heights is 3 : 4. Base of the smaller triangle is 15 cm. Find the corresponding base of the larger triangle.
(a) 16 cm (b) 17 cm (c) 19 cm (d) 20 cm

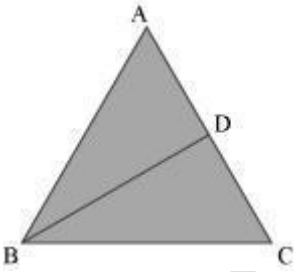
19) In the below figure, RP:PK = 3:2, then the values of A(ΔTRP):A(ΔTPK) is_____



(a) 2: 3 (b) 3: 2 (c) 3: 5 (d) 5 : 2

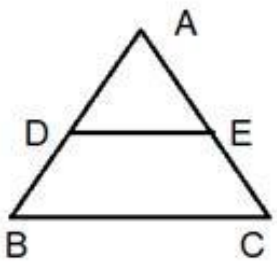
20) The areas of two similar triangles are in the ratio 49:169. The length of the shortest side of the larger triangle is 26 cm. What is the length of the shortest side of the smaller triangle?
(a) 49/13 m (b) 13/2 m (c) 13 cm (d) 14 cm

21) The given figure shows a triangle ABC where ∠ ABC = ∠ ADB.



Which of the following ratios is equal to AB: BC?
(a) AD: DC (b) AD: BD (c) BD: AC (d) BD: AB

22) In given figure, DE || BC, if AB = 7.6 cm, AD = 1.9 cm, then AE : EC is :_____



(a) 1: 4 (b) 4: 1 (c) 1: 2 (d) 1: 3

23) The areas of two similar triangles are in respectively 9 cm² and 16 cm². The ratio of their corresponding side's is_____.
(a) 3 : 4 (b) 4 : 3 (c) 2 : 3 (d) 4 : 5

24) $\Delta ABC \sim \Delta PQR$ such that area (ΔABC) = 4area (ΔPQR). If BC = 12 cm, then QR = _____.
(a) 9 cm (b) 10 cm (c) 6 cm (d) 8 cm

25) If ΔABC and ΔDEF are similar such that 2AB = DE and BC = 8 cm, then EF =_____.
(a) 16 cm (b) 12 cm (c) 8 cm (d) 4 cm

Success Key Worksheet

Std: Class 10 (Eng.& Semi) | **Ch.1 Similarity** | **Time: 1 Hr.**

DPP 1 (Ans. Key)

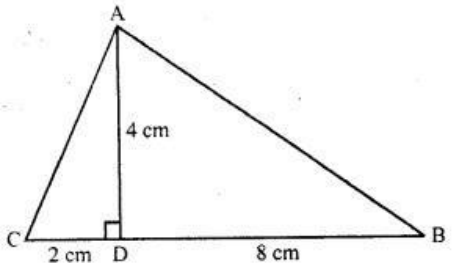
Date: | **Subject: Mathematics-2** | **Max Marks: 25**

Q.1) Choose the correct alternative answer for each of the following question: **25**

1)Ans. (d)

In ΔABC, $AD \perp BC$

BD = 8 cm, DC = 2 cm, AD = 4 cm



In right ΔACD,

$AC^2 = AD^2 + CD^2$ (Pythagoras Theorem)

$= (4)^2 + (2)^2$

$= 16 + 4 = 20$

and in right ΔABD,

$AB^2 = AD^2 + DB^2$

$= (4)^2 + (8)^2$

$= 16 + 64 = 80$

and $BC^2 = (BD + DC)^2 = (8 + 2)^2$

$= (10)^2 = 100$

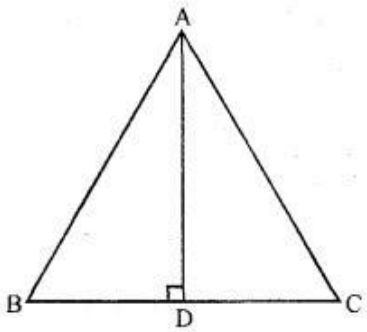
$\because AB^2 + AC^2 = 80 + 20 = 100 = BC^2$

$\therefore \Delta ABC$ is a right triangle whose $\angle A = 90^\circ$

2)Ans. (c)

In equilateral ΔABC, $AD \perp BC$

$\therefore$ AD bisects BC at D



$\therefore$ BD = DC

Now in right ΔADC,

$AC^2 = AD^2 + DC^2$ (Pythagoras Theorem)

$AD^2 = AC^2 - DC^2$

$= BC^2 - DC^2$ ($\because$ AC = BC = AB)

$= (2DC)^2 - DC^2$ ($\because$ D is mid point of BC)

$= 4DC^2 - DC^2 = 3DC^2$

$= 3CD^2$ (c)

3)Ans. (c)

Area of the larger triangle ABC = 144 cm^2
and area of smaller ΔDEF = 81 cm^2
Longest side of larger triangle = 36 cm
Let the longest side of smaller triangle = x cm
$\because$ The ratio of the areas of two similar triangles is proportional to the squares of their corresponding sides

$$\therefore \frac{144}{81} = \frac{(36)^2}{(x)^2}$$

$$\Rightarrow \left(\frac{12}{9}\right)^2 = \left(\frac{36}{x}\right)^2$$

$$\Rightarrow \frac{36}{x} = \frac{12}{9} \Rightarrow x = \frac{36 \times 9}{12} = 27$$

Hence longest side of smaller ΔDEF = 27 cm (c)

4)Ans. (a)

The corresponding angles of two isosceles triangles are equal
$\therefore$ These are similar
Ratio in their areas = 16 : 25
$\because$ The ratio of areas of similar triangles are proportion to the squares of their corresponding altitudes (heights)

$$\therefore \text{Ratio in their altitudes} = \sqrt{\frac{16}{25}} = \frac{4}{5}$$

= i.e., 4 : 5 (a)

5)Ans. (a)

The ratio of the areas of two triangles with equal heights is equal to the ratio of their corresponding bases

6)Ans. (b)

The ratio of the areas of two triangles with equal bases is equal to the ratio of their corresponding heights.

7)Ans. (b)

Comparing ΔABC and ΔDBE: $\angle ABC = \angle DBE$ (Common), $\angle ACB = \angle DEB$ (= 90°)
$\therefore$ $\Delta ABC \sim \Delta DBE$ (By AA similarity criterion)
It is known that corresponding sides of similar triangles are in the same ratio.
$\therefore$ EC = BC − BE = 9 cm − 6 cm = 3 cm
Thus, the length of EC is 3 cm.

8)Ans. (c)

Since ΔABC and ΔRQP are similar, therefore,
$\angle A = \angle R$, $\angle B = \angle Q$ and $\angle C = \angle P$
But $\angle A = 80°$ and $\angle B = 60°$ (Given)

$\angle PR = \angle A = 80°$ and $\angle Q = \angle B = 60°$

$\angle P = 180° - \angle R - \angle Q$

$= 180° – 80° – 60°$ [$\therefore \angle R = 80°$ and $\angle Q = 60°$]

$= 180° - 140°$

$\angle P = 40°$.

9)Ans. (c)

AC = CE

BC = CD

$\angle ACB = \angle ECD$ (Opposite angle)

$\Delta ABC \sim \Delta EDC$ by SAS test

10)Ans. (a)

$$\frac{RM}{MP} = \frac{8}{10} = \frac{4}{5}$$

$$\frac{RN}{NQ} = \frac{4}{5}$$

$$\frac{RM}{MP} = \frac{RN}{NQ}$$

line MN is parallel to side PQ

11)Ans. (d)

By midpoint theorem,

If D and E are respectively the midpoints on the sides AB and AC of a triangle ABC,

DE||BC and BC = 12 cm

So, DE will be half of BC i.e. 6 cm

12)Ans. (a)

Ray AD is the angle bisector of $\angle BAC$ of ΔABC

By angle bisector theorem

$$\frac{AB}{AC} = \frac{BD}{DC}$$

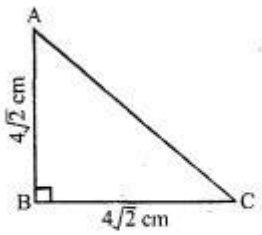
$$\frac{15}{18} = \frac{10}{x}$$

$$x = \frac{18 \times 10}{15}$$

$$x = \frac{180}{15} = 12$$

13)Ans. (b)

In isosceles right ΔABC



$\angle B = 90°$, $AB = BC = 4\sqrt{2}$

$\therefore$ AC = $\sqrt{2}$ × equal side

$= \sqrt{2} \times 4\sqrt{2} = 8$ cm (b)

14)Ans. (a)

Let ar (ΔAOD) be x.

In ΔAOD and ΔCOB:

∠AOD = ∠COB [Vertically opposite angles]

∠ADO = ∠CBO [Alternate interior angles]

∴ ΔAOD ~ ΔCOB [AA similarity criterion]

It is known that the ratio of two similar triangles is equal to the square of the ratio of corresponding sides.

Thus, the ratio of the areas of ΔABD and ΔBCD is 1:3.

15)Ans. (d)

DE || BC

$$\frac{AD}{DB}=\frac{AE}{EC}$$

$$\frac{x}{x-1}=\frac{x-3}{x-5}$$

$$x(x-5)=(x-3)(x-1)$$

$$x^2-5x=x^2-x-3x+3$$

$$-5x=-4x+3$$

$$-5x+4x=3$$

$$-x=3$$

$$x=-3$$

16)Ans. (c)

17)Ans. (d)

Let ABC and PQR be two right triangles with AB ⊥ BC and PQ ⊥ QR.

Given:

BC = 6, AB = 5, PQ = 10 and QR = 9.

$$\frac{A(\Delta ABC)}{A(\Delta PQR)}=\frac{b\times h}{b\times h}=\frac{\overset{2}{6}\times\overset{1}{5}}{\underset{3}{9}\times\underset{2}{10}}=\frac{2\times 1}{3\times 2}=\frac{1}{3}$$

18)Ans. (d)

$$\frac{A(\Delta ABC)}{A(\Delta PQR)}=\frac{b}{b}$$

$$\frac{3}{4}=\frac{15}{b}$$

$$3b=60$$

$$b=\frac{60}{3}=20cm$$

19)Ans. (b)

RP:PK = 3:2 ----- [Given]

Let the common multiple be x.

∴ RP = 3x, PK = 2x

$$\frac{A(\Delta TRP)}{A(\Delta TPK)}=\frac{RP}{PK}=\frac{3x}{2x}=\frac{3}{2}$$

20)Ans. (d)

21)Ans. (b)

Comparing ΔABC and ΔADB: ∠ABC = ∠ADB (Given), ∠BAC = ∠BAD (Common)
Therefore, by AA similarity criterion, ΔABC = ΔADB
It is known that corresponding sides of similar triangles are proportional.
AB : BC = AD: BD

22)Ans. (a)

DE || BC

$$\frac{AD}{DB}=\frac{AE}{EC}$$

$$\frac{1.9}{7.6}=\frac{AE}{EC}$$

$$\frac{AE}{EC}=\frac{1}{4}$$

23)Ans. (a)

Ratio in the areas of two similar triangles
$= 9\ cm^2 : 16\ cm^2 = 9 : 16$

∵ The areas of similar triangles are proportional to the squares of their corresponding sides

∵ Ratio in their corresponding sides

$$= \sqrt{\frac{9}{16}} = \frac{3}{4} = 3 : 4 \quad \text{(a)}$$

24)Ans. (c)

$\Delta ABC \sim \Delta PQR$
ar $(\Delta ABC) = 4$ar (ΔPQR), BC = 12 cm

∵ $\Delta ABC \sim \Delta PQR$

$$\therefore \frac{\text{area } \Delta ABC}{\text{ar } (\Delta PQR)} = \frac{BC^2}{EF^2}$$

$$\Rightarrow 4 = \frac{(12)^2}{EF^2} \Rightarrow 4 = \frac{144}{EF^2}$$

$$\Rightarrow EF^2 = \frac{144}{4} = 36 = (6)^2$$

$\therefore$ EF = 6 cm (c)

25)Ans. (a)

$\Delta ABC \sim \Delta DEF$
2AB = DE, BC = 8 cm

$$\frac{AB}{DE} = \frac{1}{2}$$

∵ $\Delta ABC \sim \Delta DEF$

$$\therefore \frac{AB}{DE} = \frac{BC}{EF}$$

$$\Rightarrow \frac{1}{2} = \frac{8}{EF} \Rightarrow EF = 2 \times 8 = 16$$

Hence EF = 16 cm (a)

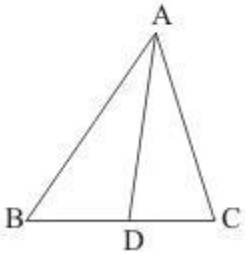
Success Key Worksheet

Std: Class 10 (Eng.& Semi) | **Ch. 1 Similarity (DPP 2)** | **Time: 1 Hr.**

Date: | **Subject: Mathematics-2** | **Max Marks: 25**

Q.1) Choose the correct alternative answer for each of the following question: 25

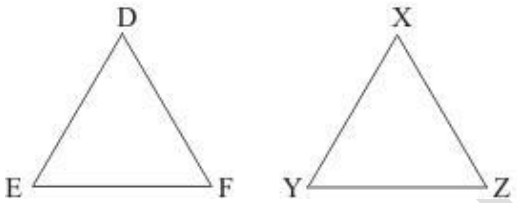
1) **In fig. BD = 8, BC = 12, B–D–C then $\frac{A(\Delta ABC)}{A(\Delta ABD)} = ?$**



(a) 2 : 3 (b) 3 : 2 (c) 5 : 3 (d) 3 : 4

2) **In ΔDEF and ΔXYZ, $\frac{DE}{XY} = \frac{FE}{YZ}$ and $\angle E \cong \angle Y$**

_____ test gives similarity between ΔDEF and ΔXYZ.



(a) AAA (b) SAS (c) SAA (d) SSS

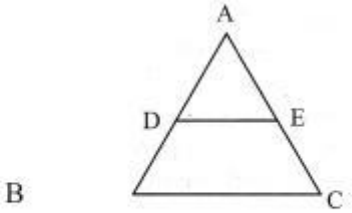
3) **If $\Delta ABC \sim \Delta LMN$ $\angle = 60^0$ then $\angle A = ?$**

(a) 45^0 (b) 60^0 (c) 25^0 (d) 40^0

4) **If $\Delta YZ \sim \Delta PQR$ then $\frac{XY}{PQ} = \frac{YZ}{PQ} = ?$**

(a) $\frac{XZ}{OR}$ (b) $\frac{XZ}{PO}$ (c) $\frac{XZ}{QR}$ (d) $\frac{YZ}{PQ}$

5) In the fig. seg DE || sec BC, identify correct statement.



(a) $\frac{AD}{DB} = \frac{AE}{AC}$ (b) $\frac{AD}{DB} = \frac{AB}{AC}$ (c) $\frac{AD}{DB} = \frac{EC}{AC}$ (d) $\frac{AD}{DB} = \frac{AE}{EC}$

6) **Given $\Delta ABC \sim \Delta DEF$, if $\angle A = 45^0$ and $\angle E = 35^0$ then $\angle B = ?$**

(a) 45^0 (b) 30^0 (c) 25^0 (d) 40^0

7) Ratio of areas of two similar triangles is 9 : 25, _____ is the ratio of their corresponding sides.

(a) 3 : 4 (b) 3 : 5 (c) 5 : 3 (d) 25 : 81

8) If $\triangle XYZ \sim \triangle PQR$ and $A(\triangle XYZ) = 25\ cm^2$, $A(\triangle PQR) = 4\ cm^2$ then XY : PQ?

(a) 4 : 25 (b) 2 : 5 (c) 5 : 2 (d) 25 : 4

9) Which of the following is not a test of similarity?

(a) AAA (b) SAS (c) SAA (d) SSS

10) If $\triangle ABC \sim \triangle PQR$ and AB : PQ = 3 : 4 then $A(\triangle ABC) : A(\triangle PQR) = ?$

(a) 9 : 25 (b) 9 : 16 (c) 16 : 9 (d) 25 : 9

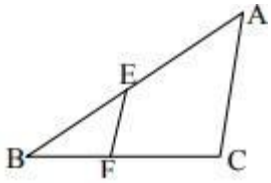
11) If Δ ABC ~ Δ DEF and $\angle A = 48°$, then $\angle D$ = _____.

(a) 48° (b) 83° (c) 49° (d) 132°

12) The areas of two similar triangles are $32cm^2$ and $48cm^2$. If the square of a side of the first Δ is $24cm^2$, then the square of the corresponding side of 2nd triangle will be _____.

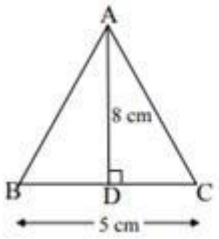
(a) $28cm^2$ (b) $36\ cm^2$ (c) $23\ cm^2$ (d) $34cm^2$

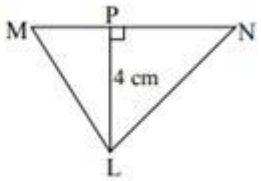
13) In the below figure, seg EF || side AC, AB = 18, AE = 10, BF = 4. Find BC?



(a) 4 (b) 5 (c) 9 (d) 10

14) Find the value of MN, so that $A(\Delta ABC) = A(\Delta LMN)$.



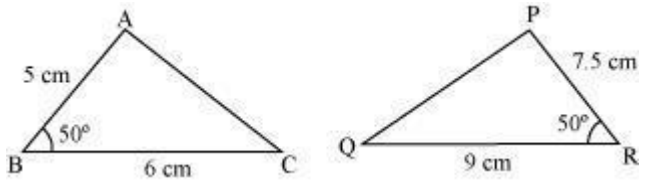


(a) 7 cm (b) 8 cm (c) 9 cm (d) 10 cm

15) If ABC and DEF are similar triangles such that $\angle A = 47°$ and $\angle E = 83°$, then $\angle C$ = _____.

(a) 50° (b) 60° (c) 70° (d) 80°

16) What is the ratio of the areas of ΔABC and ΔPQR?



(a) 5:9 (b) 4:9 (c) 4:5 (d) 5:7

17) ΔLMN ~ ΔRST and A(ΔLMN) = 100 sq. cm, A(ΔRST) = 144 sq. cm, LM = 5 cm. Find RS.
(a) 5 cm (b) 6 cm (c) 7 cm (d) 9 cm

18) If in ΔABC and ΔDEF, $\frac{AB}{DE}=\frac{BC}{FD}$, then ΔABC ~ ΔDEF when

(a) ∠A = ∠F (b) ∠A = ∠D (c) ∠B = ∠D (d) ∠B = ∠E

19) In triangle PQR, if PQ = 6 cm, PR = 8 cm, QS = 3 cm, and PS is the bisector of angle QPR, What is the length of SR?
(a) 2 (b) 4 (c) 6 (d) 8

20) Base of triangle is 10 and height is 12. Base of another triangle is 9 and height is 6. Find ratio of area of these triangles.
(a) $\frac{20}{9}$ (b) $\frac{12}{9}$ (c) $\frac{18}{9}$ (d) $\frac{22}{9}$

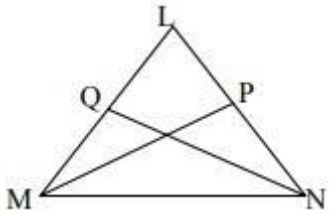
21) In an equilateral triangle ABC if AD ⊥ BC, then AD^2 =_____.
(a) CD^2 (b) $2CD^2$ (c) $3CD^2$ (d) $4CD^2$

22) In an equilateral triangle ABC if AD ⊥ BC, then_____
(a) $5AB^2 = 4AD^2$ (b) $3AB^2 = 4AD^2$ (c) $4AB^2 = 3AD^2$ (d) $2AB^2 = 3AD^2$

23) If ΔABC ~ ΔDEF and ΔABC is not similar to ΔDEF then which of the following is not true?

(a) $\frac{BC}{EF}=\frac{AC}{FD}$ (b) $\frac{AB}{DE}=\frac{AC}{FD}$ (c) $\frac{BC}{DE}=\frac{AB}{DF}$ (d) $\frac{AB}{DE}=\frac{BC}{EF}$

24) In the below figure, ΔMPL ~ ΔNQL, MP = 21, ML = 35, NQ = 18, QL = 24. Find PL?



(a) 21 (b) 28 (c) 23 (d) 25

25) If ΔABC ~ ∠ ΔYZX such that ∠A = 53° and ∠Z = 39°, then what is the measure of ∠C?
(a) 39˚ (b) 53˚ (c) 88˚ (d) 92˚

Success Key Test Series

Std: Class 10 (Eng.&Semi) | **Ch. 1 Similarity** | **Time: 1 Hr.**

(DPP 2) Answer Key

Date: | **Subject: Mathematics-2** | **Max Marks: 25**

Q.1) Choose the correct alternative answer for each of the following question: **25**

1)Ans. B

Note that △ABC and △ABD have same height.

$$\therefore \frac{A(\Delta ABC)}{A(\Delta ABD)} = \frac{BC}{BD} \quad \ldots\ldots$$

The ratio of the areas of two triangles with equal height is equal to the ratio of their corresponding bases.

$$\therefore \frac{A(\Delta ABC)}{A(\Delta ABD)} = \frac{12}{8} = \frac{3}{2}$$

2)Ans. B

3)Ans. B

$\Delta ABC \sim \Delta LMN$

$\therefore \angle B \cong \angle E$ ..... (Corresponding angles of similar triangle)

But $\angle A = 60^0$

$\therefore \angle L = 60^0$

4)Ans. A

5)Ans. D

Basic proportionality theorem.

6)Ans. B

$\Delta ABC \sim \Delta DEF$

$\therefore \angle B \cong \angle E$

..... (Corresponding angles of similar triangle)

But $\angle E = 35^0$

$\therefore \angle B \cong \angle E$

7)Ans. B

Let △ABC and △PQR be two similar triangles.

According to the given condition.

$$\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{9}{25}$$

But $\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{AB^2}{PQ^2}$

.....Theorem of areas of similar triangle

$$\therefore \frac{AB^2}{PQ^2} = \frac{9}{25}$$

$$\therefore \frac{AB}{PQ} = \frac{3}{5}$$

$\therefore$ 3 : 5 is the ratio of their corresponding sides.

8)Ans. C

$$\frac{A(\Delta XYZ)}{A(\Delta PQR)} = \frac{XY^2}{PQ^2}$$

.....Theorem of areas of similar triangle

$$\therefore \frac{25}{4} = \frac{XY^2}{PQ^2}$$

$$\therefore \frac{XY}{PQ} = \frac{5}{2}$$

$$\therefore \quad XY : PQ = 5 : 2$$

9)Ans. C

10)Ans. B

$$\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{AB^2}{PQ^2}$$

$$= \frac{3^2}{4} = \frac{9}{16}$$

.....Theorem of areas of similar triangle

$A(\Delta ABC) : (A\Delta PQR) = 9 : 16$

11)Ans. (a)

12)Ans. (b)

$$\frac{A(\Delta ABC)}{A(\Delta DEF)} = \frac{(AB)^2}{(DE)^2}$$

$$\frac{32}{48} = \frac{24}{(DE)^2}$$

$$(DE)^2 = \frac{\overset{3}{48} \times \overset{12}{24}}{\underset{2}{32}} = 36$$

13)Ans. (c)

14)Ans. (d)

$$\frac{A(\Delta ABC)}{A(\Delta LMN)} = \frac{b \times h}{b \times h} = \frac{BC \times AD}{MN \times PL}$$

$$\frac{A(\Delta ABC)}{A(\Delta ABC)} = \frac{5 \times 8}{MN \times 4}$$

$$\frac{1}{1} = \frac{40}{4 \times MN}$$

$$MN = \frac{40}{4} = 10cm$$

15)Ans. (a)

$\Delta ABC \sim \Delta DEF$

$\angle A = 47°, \angle E = 83°$

$\because$ ΔABC and $\angle DEF$ are similar

$\therefore$ $\angle A = \angle D$, $\angle B = \angle E$ and $\angle C = \angle F$

$\angle A = 47°$

$\angle B = \angle E = 83°$

But $\angle A + \angle B + \angle C = 180°$

(Sum of angles of a triangle)

$\therefore$ $47° + 83° + \angle C = 180°$

$\Rightarrow$ $130° + \angle C = 180° \Rightarrow \angle C = 180° - 130°$

$\Rightarrow$ $\angle C = 50°$ (a).

16)Ans. (b)

17)Ans. (b)

$$\frac{A(\Delta LMN)}{A(\Delta RST)} = \frac{(LM)^2}{(RS)^2}$$

$$\frac{100}{144} = \frac{(5)^2}{(RS)^2}$$

$$\frac{10}{12} = \frac{5}{RS}$$

$$RS = \frac{60}{10} = 6cm$$

18)Ans. (c)

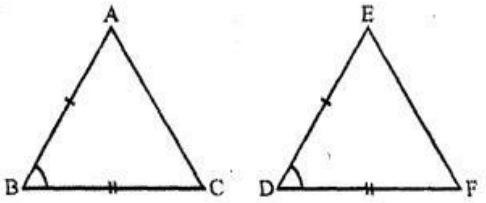
$\Delta ABC \sim \Delta DEF$

In ΔABC and ΔDEF,

$$\frac{AB}{DE} = \frac{BC}{FD}$$

Then $\angle B = \angle D$ **(c)**

(included angle SAS axiom)



19)Ans. (b)

Since, PS is the angle bisector of angle QPR.

So, by angle bisector theorem,

$$\frac{QS}{SR} = \frac{PQ}{PR}$$

$$\frac{3}{SR} = \frac{6}{8}$$

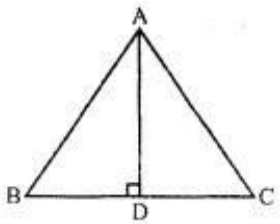
$$SR = \frac{3\times 8}{6} = \frac{24}{6} = 4cm$$

20)Ans. (a)

$$\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{b\times h}{b\times h} = \frac{\overset{5}{10}\times\overset{4}{12}}{\underset{3}{9}\times\underset{3}{6}} = \frac{5\times 4}{3\times 3} = \frac{20}{9}$$

21)Ans. (c)

In equilateral ΔABC, $AD \perp BC$



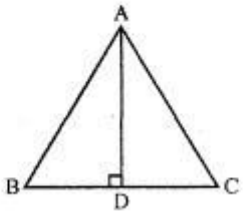
$AD^2 = AC^2 - CD^2$

$= (2CD)^2 - CD^2$ ($\because$ D is mid point)

$= 4CD^2 - CD^2 = 3CD^2$ **(c)**

22)Ans. (b)

In equilateral ΔABC, $AD \perp BC$



$\therefore$ D is mid point of BC

$$AD^2 = AB^2 - BD^2 = AB^2 - \left(\frac{1}{2}AB\right)^2$$

$$= AB^2 - \frac{1}{4}AB^2 = \frac{3}{4}AB^2$$

$\therefore 4AD^2 = 3AB^2$ or $3AB^2 = 4AD^2$ (b)

23)Ans. (c)

If $\Delta ABC \sim \Delta DEF$

$$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{FD}$$

24)Ans. (b)

$\Delta MPL \sim \Delta NQL$

$$\frac{MP}{NQ} = \frac{PL}{QL}$$

$$\frac{21}{18} = \frac{PL}{24}$$

$$PL = \frac{\overset{7}{21} \times \overset{4}{24}}{\underset{6}{18}} = 28$$

25)Ans. (c)

It is given that: $\Delta ABC = \Delta YZX$

$\therefore \angle A = \angle Y, \angle B = \angle Z, \angle C = \angle X$

It is given that $\angle A = 53°$ and $\angle Z = 39°$ $\therefore \angle B = \angle Z = 39°$

Applying angle sum property of triangles in ΔABC:

$\angle A + \angle B + \angle C = 180°$

$\Rightarrow 53° + 39° + \angle C = 180°$

$\Rightarrow \angle C = 88°$