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Final revision Geometry

Choose the correct answer

Two similar polygons are congruent if the scale factor k satisfies that ....

(a) $k = \frac{1}{2}$ (b) $k = 1$ (c) $k > 1$ (d) $0 < k < 1$

k: $k > 1$ max.

$k = 1$ Cong.

$0 < k < 1$ min.

Choose the correct answer

The ratio between the perimeters of two similar triangles is 4 : 9 , then the ratio between the length of two corresponding sides = ...

(a) 4 : 9 (b) 81 : 16 (c) 16 : 81 (d) 3 : 2

$$\frac{P_1}{P_2} = \frac{S_1}{S_2} \quad \text{While} \quad \frac{a_1}{a_2} = \left(\frac{P_1}{P_2}\right)^2 = \left(\frac{S_1}{S_2}\right)^2$$

Choose the correct answer

The ratio between two corresponding sides in two similar polygons is 2 : 3 , if the perimeter of the smaller is 14 cm. , then the perimeter of the greater = ...

(a) 10 (b) 15 (c) 42 (d) 21

$$\frac{P_1}{P_2} = \frac{S_1}{S_2}$$

$$\frac{14}{P_2} = \frac{2}{3} \Rightarrow P_2 = \frac{3 \times 14}{2} = 21 \text{ cm}$$

Choose the correct answer

In the opposite figure :

If the polygon ABCD ~ polygon XYZL

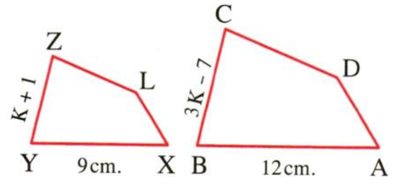
, then K = ……………

(a) 5

(b) 7

(c) 9

(d) 21



$$\frac{AB}{XY} = \frac{BC}{YZ} \Longrightarrow \frac{12}{9} = \frac{3K-7}{K+1} = \frac{4}{3}$$

$$3(3K-7) = 4(K+1)$$

$$9K - 21 = 4K + 4$$

$$9K - 4K = 4 + 21$$

$$5K = 25 \qquad \therefore K = \frac{25}{5} = 5$$

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Choose the correct answer

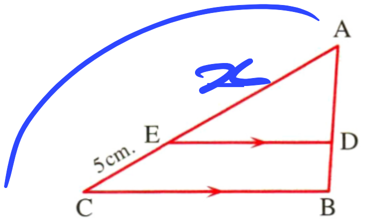
In the opposite figure :

If $\overline{DE} \parallel \overline{BC}$, 3 DE = 2 BC

EC = 5 cm. , then AE = ... cm.

(a) 15 (b) 12

(c) 10 (d) 6



$\triangle ADE \sim \triangle ABC$

$3DE = 2BC$

$\frac{DE}{BC} = \frac{AE}{AC}$

$\frac{DE}{BC} = \frac{2}{3}$

$\frac{2}{3} = \frac{x}{x+5}$

$3x = 2x + 10$

$3x - 2x = 10$

$AE = x = 10$

Choose the correct answer

If $\Delta ABC \sim \Delta XYZ$ and $AB = 3\ XY$, then $\frac{a(\Delta XYZ)}{a(\Delta ABC)} = \cdots\cdots\cdots\cdots\cdots$

(a) 9 (b) 3 (c) $\frac{1}{3}$ (d) $\frac{1}{9}$

$$\frac{a.(\Delta XYZ)}{a.(\Delta ABC)} = \left(\frac{XY}{AB}\right)^2$$

$$= \left(\frac{1}{3}\right)^2 = \frac{1}{9}$$

$1\ AB = 3\ XY$

$$\frac{XY}{AB} = \frac{1}{3}$$

Choose the correct answer

The ratio between the lengths of two sides in two squares is 3 : 5 and the area of the greater square is 100 cm^2, then the perimeter of the smaller = ... cm.

(a) 12 (b) 16 (c) 24 (d) 27

$$\frac{a_1}{a_2} = \left(\frac{S_1}{S_2}\right)^2 = \left(\frac{3}{5}\right)^2$$

$$\frac{a_1}{a_2} = \frac{9}{25}$$

$$\frac{a_1}{100} = \frac{9}{25} \Rightarrow a_1 = \frac{9 \times 100}{25} = 36\text{cm}^2$$

$$a_1 = (l_1)^2 = 36$$

$$\therefore l_1 = \sqrt{36} = 6\text{cm}$$

$$P_1 = 4l_1 = 4(6) = 24\text{cm}$$

Choose the correct answer

Two polygons are similar. The ratio between the lengths of two corresponding sides is 5 : 3 and the difference between their areas equals 32 cm^2, then the area of the smaller polygon = ... cm^2.

(a) 18 (b) 32 (c) 50 (d) 64

$$\frac{a_1}{a_2} = \left(\frac{S_1}{S_2}\right)^2 = \left(\frac{5}{3}\right)^2 = \frac{25}{9}$$

$a_1 : a_2 : diff$

$25 : 9 : 16$

$? : ?? : 32$

$a_1 = 25m$ $a_2 = 9m$

$diff. = a_1 - a_2 = 32$

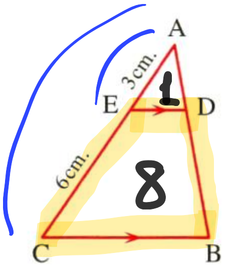
$25m - 9m = 32$

$16m = 32$ $\boxed{\therefore m = 2}$

$a_1 = 25(2) = 50\ cm^2$ $a_2 = 9(2) = 18\ cm^2$

Choose the correct answer ★

In the opposite figure :



The area of the quadrilateral DBCE = ……8…… the area of Δ ADE

(a) 3 (b) 4

(c) 8 (d) 9

$\because \overline{DE} \parallel \overline{BC}$

$\therefore \Delta AED \sim \Delta ACB$

$\therefore \dfrac{a.\Delta ADE}{a.\Delta ABC} = \left(\dfrac{3}{9}\right)^2 = \dfrac{1}{9}$ Part / Parts

Choose the correct answer

If the polygon ABCD ~ the polygon XYZL and AB = 32 cm. , BC = 40 cm. , XY = (3 m — 1) cm. , YZ = (3 m + 1) cm. , then m = ...

(a) 5 (b) 1 (c) 2 (d) 3

$$\frac{AB}{XY} = \frac{BC}{YZ} \Rightarrow \frac{32}{3m-1} = \frac{40}{3m+1}$$

$$120m - 40 = 96m + 32$$

$$120m - 96m = 32 + 40$$

$$24m = 72 \qquad \therefore m = \frac{72}{24} = 3$$

Choose the correct answer

In the opposite figure :

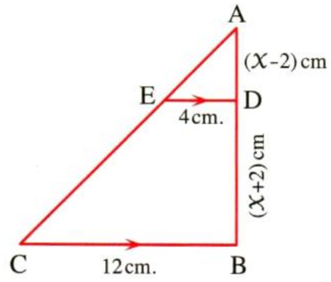
$\overline{DE} \parallel \overline{BC}$, DE = 4 cm. , BC = 12 cm.

, AD = $(x - 2)$ cm. , BD = $(x + 2)$ cm.

, then x = ... cm.

(a) 6 (b) 8

(c) 10 (d) 12



$\triangle \widehat{ADE} \sim \triangle \widehat{ABC}$

$$\frac{AD}{AB} = \frac{DE}{BC} \Rightarrow \frac{x-2}{x\cancel{-2}+x\cancel{+2}} = \frac{4}{12}$$

$$\frac{x-2}{2x} = \frac{1}{3}$$

$$3x - 6 = 2x$$

$$3x - 2x = 6$$

$$\boxed{\therefore x = 6}$$

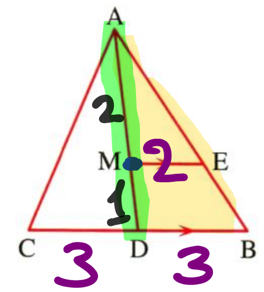
Choose the correct answer *

In the opposite figure :

M is the point of intersection of medians of ΔABC , $\overline{ME} \parallel \overline{BD}$, then $\frac{ME}{BC} = \dots\dots$ $\frac{2}{6} = \frac{1}{3}$

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$

(c) $\frac{1}{4}$ ~~(d)~~ $\frac{2}{3}$



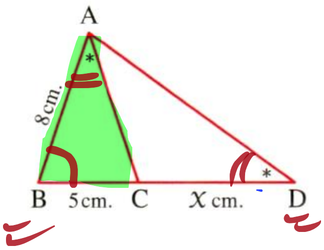
$\because \overline{ME} \parallel \overline{DB}$

$\therefore \Delta \widehat{A}\widehat{M}\widehat{E} \sim \Delta \widehat{A}\widehat{D}B$

$\frac{AM}{AD} = \frac{ME}{DB} = \frac{2}{3}$

Choose the correct answer

In the opposite figure :



m (∠ ADC) = m (∠ BAC) , X = ... cm.

(a) 3.9 (b) 4.5

(c) 5.4 (d) 7.8

∠B is a Common angle

m(∠BAC) = m(∠D)

m(∠BCA) = m(∠A)

$\therefore \triangle BAC \sim \triangle BDA$

$$\frac{BA}{BD} = \frac{AC}{DA} = \frac{CB}{AB} \Rightarrow \frac{8}{x+5} = \frac{5}{8}$$

$$x+5 = \frac{8 \times 8}{5}$$

$$x+5 = 12.8$$

$$x = 12.8 - 5 = 7.8$$

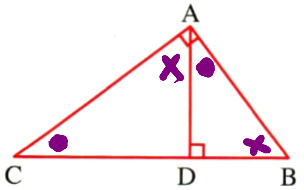
Choose the correct answer

In the opposite figure :

ΔABC is right angled triangle at A

, $\overline{AD} \perp \overline{BC}$, then the false statment

of the following is ....



(a) $\Delta ABC \sim \Delta DBA$

(b) $\Delta ABC \sim \Delta DAC$

(c) $\Delta ACD \sim \Delta BAD$

(d) $AD = DB \times DC$

$(AD)^2 = DB \times DC$

Choose the correct answer

$(AB)^2 = BD \times BC$

$(AC)^2 = CD \times BC$

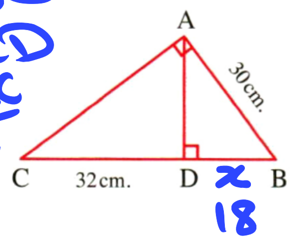
$(AD)^2 = BD \times CD$

$AD = \frac{AB \times AC}{BC}$

In the opposite figure :

AB = 30 cm. , DC = 32 cm.

, then AD = ... cm.



(a) 18 (b) 50

(c) 24 (d) 20

$$(AB)^2 = BD \times BC$$

$$(30)^2 = x\,(x + 32)$$

$$900 = x^2 + 32x$$

$$x^2 + 32x - 900 = 0$$

$$x = 18$$

$$x = -50$$

$$(AD)^2 = DB \times DC$$

$$= 18 \times 32$$

$$(AD)^2 = 576$$

$$AD = \sqrt{576} = 24$$

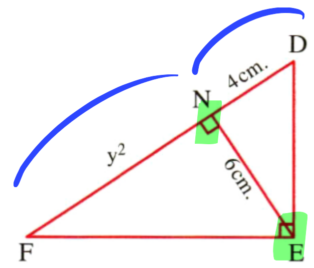
Choose the correct answer

In the opposite figure :

DEF is a right angled triangle at E

, $\overline{EN} \perp \overline{DF}$, DN = 4 cm. , EN = 6 cm.

, then y = ...



(a) 24

(b) 9

(c) 3

(d) ± 3

$(EN)^2 = FN \times DN$

$36 = 4y^2$

$y^2 = \frac{36}{4} = 9$

$y = \pm\sqrt{9} = \pm 3$

$(-3)^2 = 9$

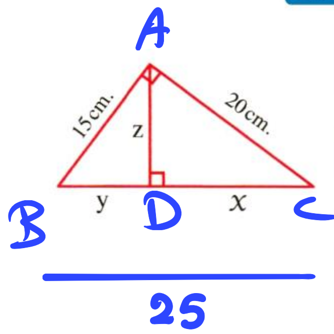
Choose the correct answer

In the opposite figure :

$\overset{25}{\boxed{x+y}} + \overset{12}{z} = \dots 25 + 12 = 37$

(a) 44 (b) 37

(c) 28 (d) 52

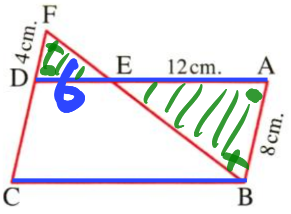


$$BC = \sqrt{(15)^2 + (20)^2} = 25$$

$$AD = \frac{15 \times 20}{25} = 12$$

Choose the correct answer

In the opposite figure :



ABCD is a parallelogram , $F \in \overrightarrow{CD}$

, AE = 12 cm. , FD = 4 cm. , AB = 8 cm.

, then BC = ... cm.

(a) 18 (b) 15 (c) 10 (d) 5

$\triangle ABE \sim \triangle DFE$

$\frac{AB}{DF} = \frac{AE}{DE} \Rightarrow \frac{8}{4} = \frac{12}{DE}$

$DE = \frac{4 \times 12}{8} = 6$

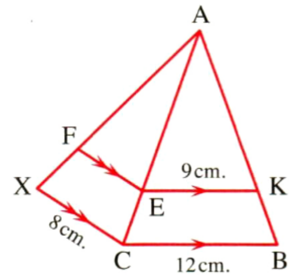
$AD = 6 + 12 = 18$

Choose the correct answer

In the opposite figure :

$\overline{KE} \parallel \overline{BC}$, $\overline{EF} \parallel \overline{XC}$, KE = 9 cm. , BC = 12 cm.

, CX = 8 cm. , then EF = ... cm.



(a) 3 (b) 6

(c) 9 (d) 12

$\because \overline{EK} \parallel \overline{CB}$

$\therefore \triangle AEK \sim \triangle ACB$

$\frac{AE}{AC} = \frac{EK}{CB}$

$\frac{AE}{AC} = \frac{9}{12} = \frac{3}{4}$

$\overline{FE} \parallel \overline{XC}$

$\therefore \triangle AEF \sim \triangle ACX$

$\therefore \frac{AE}{AC} = \frac{EF}{CX}$

$\frac{3}{4} = \frac{EF}{8}$

$\therefore EF = \frac{3 \times 8}{4} = 6$

Choose the correct answer

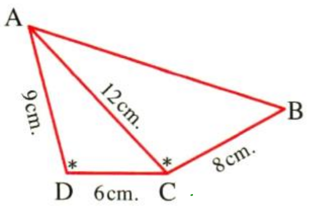
In the opposite figure :

m (∠ D) = m (∠ ACB)

, then AB = …………… cm.

(a) 12 (b) 16

(c) 18 (d) 20



$\triangle ACB \sim \triangle ADC$

$\frac{AC}{AD} = \frac{AB}{AC} \Rightarrow \frac{12}{9} = \frac{AB}{12}$

$AB = \frac{12 \times 12}{9} = 16$

Choose the correct answer

$CD = \sqrt{(10)^2 - (6)^2} = 8$

By using the givens in the figure

AD + AB = $12 + 12$ .... cm.

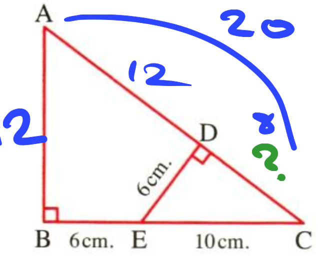
24

(a) 15

(b) 9.6

(c) 12

(d) 24



$\triangle CDE \sim \triangle CBA$

$$\frac{CD}{CB} = \frac{DE}{BA} = \frac{CE}{CA} \Rightarrow \frac{8}{16} = \frac{6}{BA} = \frac{10}{CA}$$

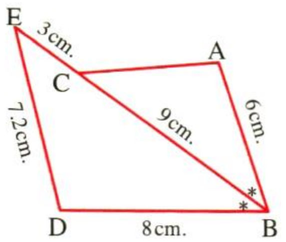
$BA = 12$ $\qquad$ $CA = 20$

Choose the correct answer

In the opposite figure :

$\overrightarrow{BC}$ bisects $\angle ABD$

, AC = ... cm.



(a) 4.8 (b) 5.4

(c) 5.8 (d) 6.2

$\triangle ABC \sim \triangle DBE$

$$\frac{AB}{DB} = \frac{BC}{BE} = \frac{AC}{DE} \Rightarrow \frac{\boxed{6}}{\boxed{8}} = \frac{9}{12} = \frac{AC}{\boxed{7.2}}$$

$$AC = \frac{6 \times 7.2}{8} = 5.4$$

Choose the correct answer

In the opposite figure :

m (∠ B) = m (∠ E) = m (∠ ACD)

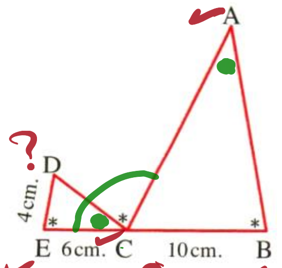
, then AB = ... cm.

(a) 12

(b) 15

(c) $\frac{20}{3}$

(d) $\frac{25}{6}$



$\triangle ABC \sim \triangle CED$

$\frac{AB}{CE} = \frac{BC}{ED} \Rightarrow \frac{AB}{6} = \frac{10}{4}$

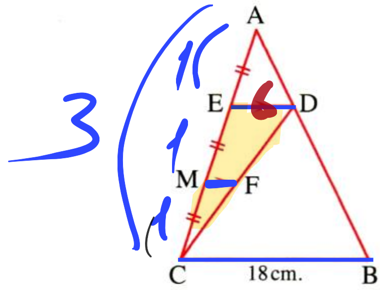
$AB = \frac{10 \times 6}{4} = 15$

Choose the correct answer

In the opposite figure :

If BC = 18 cm.

, then MF = ... cm.



(a) 2 (b) 3

(c) 4 (d) 6

$\because \overline{ED} \parallel \overline{CB}$

$\therefore \Delta \hat{A}ED \sim \Delta \hat{A}CB$

$\frac{AE}{AC} = \frac{ED}{CB}$

$\frac{1}{3} = \frac{ED}{18}$

$ED = \frac{1 \times 18}{3} = 6$ cm

$\overline{MF} \parallel \overline{ED}$

$\Delta \hat{C}MF \sim \Delta \hat{C}ED$

$\frac{CM}{CE} = \frac{MF}{ED}$

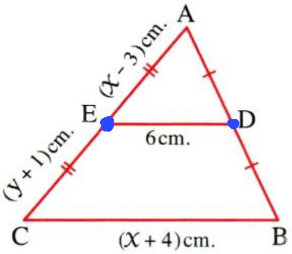
$\frac{1}{2} = \frac{MF}{6}$

$\therefore MF = \frac{1 \times 6}{2} = 3$ cm

Choose the correct answer

In the opposite figure :

If D is the midpoint of $\overline{AB}$, E is the midpoint of $\overline{AC}$, DE = 6 cm. , then ……………



(a) $X = y$ (b) $X < y$

(c) $X = 2y$ (d) $y = 2X$

$ED = \frac{1}{2} BC$

$\therefore x + 4 = 12$

$x = 12 - 4$

$\boxed{x = 8}$

$x - 3 = y + 1$

$8 - 3 = y + 1$

$5 = y + 1$

$\boxed{\therefore y = 4}$

$\boxed{X = 2y}$

Choose the correct answer

$\boxed{\bullet + * = 90}$

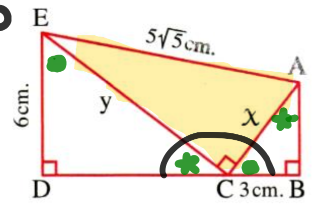
$\bullet + * = 90$

In the opposite figure :

$x + y = $ ...$5+10$... cm.

(a) 12 (b) 15

(c) 18 (d) 21



$\triangle ABC \sim \triangle CDE$

$x = \frac{1}{2} y$

$$\frac{AB}{CD} = \frac{BC}{DE} = \frac{AC}{CE}$$

$$\frac{3}{6} = \frac{x}{y} = \frac{1}{2} \Rightarrow \begin{matrix} x = 1m = 5 \\ y = 2m = 10 \end{matrix}$$

$$x^2 + y^2 = (5\sqrt{5})^2$$

$$1m^2 + 4m^2 = 125$$

$$5m^2 = 125$$

$$m^2 = 25$$

$$\boxed{\therefore m = 5}$$

Choose the correct answer

In the opposite figure :

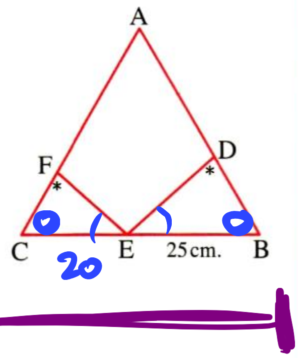
In Δ ABC , if AB = AC , BE = 25 cm.

, m ($\angle$ BDE) = m ($\angle$ CFE) 25 + 20

, DE : EF = 5 : 4 , then BC = ... cm.

(a) 45 (b) 40

(c) 55 (d) 60



$\Delta DBE \sim \Delta FCE$

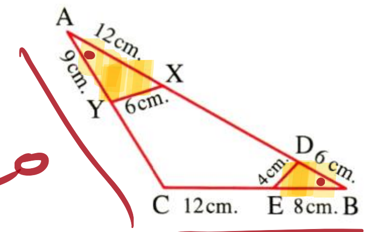
$\frac{DB}{FC} = \boxed{\frac{BE}{CE}} = \frac{DE}{FE} = \boxed{\frac{5}{4}}$

$\frac{25}{CE} = \frac{5}{4}$

$\therefore CE = \frac{4 \times 25}{5} = 20$

Choose the correct answer

In the opposite figure :



CY = ... cm.

(a) 9 (b) 10

(c) 11 (d) 12

$\frac{DE}{xy} = \frac{4}{6} = \frac{2}{3}$

$\frac{DB}{Ay} = \frac{6}{9} = \frac{2}{3}$

$\frac{BE}{AX} = \frac{8}{12} = \frac{2}{3}$

$\Delta BED \sim \Delta Axy$

Isos.

$AC = BC = 20$

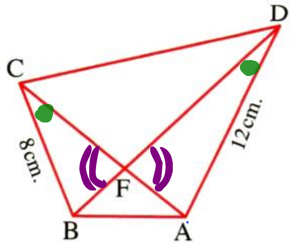
$\therefore yC = 20 - 9 = 11$

Choose the correct answer

In the opposite figure :

ABCD is a cyclic quadrilateral

, then the area of Δ AFD : the area of Δ BFC = ……………



(a) 2 : 3

(b) 3 : 2

(c) 4 : 9

(d) 9 : 4

$\Delta AFD \sim \Delta BFC$

$$\frac{a.\Delta AFD}{a.\Delta BFC} = \left(\frac{12}{8}\right)^2 = \frac{9}{4}$$

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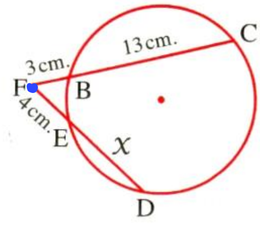
Choose the correct answer

In the opposite figure :

If $\overrightarrow{CB} \cap \overrightarrow{DE} = \{F\}$, then the value of $x =$ .... cm.



(a) 6
(b) 7
(c) 8
(d) 9

$FE \times FD = FB \times FC$

$4(4+x) = 3(16)$

$4+x = \frac{3 \times 16}{4}$

$4+x = 12$ $\therefore x = 12-4$

$\boxed{x = 8}$

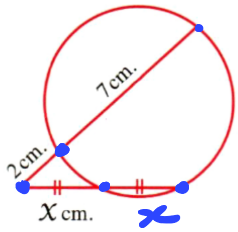
Choose the correct answer

In the opposite figure :

x = ... cm.

(a) 18 (b) 9

(c) ± 3 (d) 3



$(x)(\cancel{2}x) = (\cancel{2})(9)$

$x^2 = 9$ $\therefore x = \pm 3$ ref.

$\boxed{x = 3}$

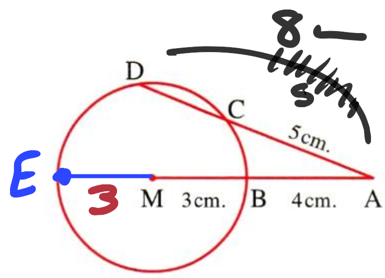
Choose the correct answer

In the opposite figure :

M is a circle with radius 3 cm.

, AB = 4 cm. , AC = 5 cm.

, then DC = …………… cm.



(a) 8 (b) 3 (c) 4 (d) 6

$AB \times AE = AC \times AD$

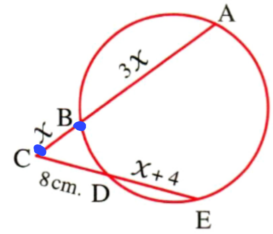
$(4)(10) = 5\ AD$

$AD = \frac{4 \times 10}{5} = 8$

$DC = 8 - 5 = 3$

Choose the correct answer

In the opposite figure :



AB = 3 x cm. , CB = x cm.

, DE = (x + 4) cm. , CD = 8 cm.

, then x = ……6……

(a) 5 (b) 6 (c) 9 (d) 3

$$CB \times CA = CD \times CE$$

$$(x)(4x) = (8)(x+12)$$

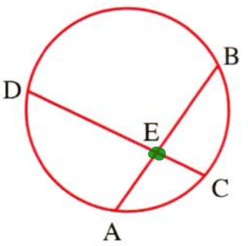
$$4x^2 = 8x + 96$$

$$4x^2 - 8x - 96 = 0$$

$x = 6$ $x = -4$ rej.

Choose the correct answer

In the opposite figure :



CE = x cm. , DE = $(3x - 1)$ cm.

, AE = $(x + 1)$ cm. , BE = $2x$ cm.

, then x = ... cm.

(a) 2 (b) 3 (c) 4 (d) 6

$EA \times EB = EC \times ED$

$(x+1)(2\cancel{x}) = (\cancel{x})(3x-1)$

$2x + 2 = 3x - 1$

$2x - 3x = -1 - 2$

$-x = -3$

$\boxed{\therefore x = 3}$

Choose the correct answer

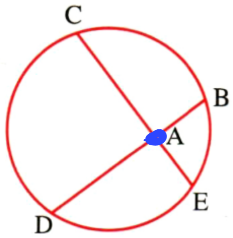
In the opposite figure :

$\overline{DB}$, $\overline{CE}$ are two chords in the circle

, $\overline{DB} \cap \overline{CE} = \{A\}$, AB = x cm. , AD = 6 cm.

, AC = (2 sin θ) cm. , AE = (9 csc θ) cm.

, then the value of x = ... cm.



(a) 3 (b) 5 (c) 6 (d) 9

$$AB \times AD = AE \times AC$$

$$(x)(6) = (9 \csc\theta)(2 \sin\theta)$$

$$6x = 18$$

$$\boxed{\therefore x = 3}$$

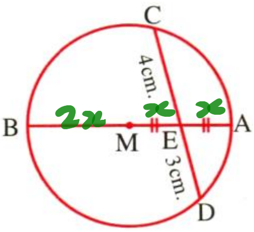
Choose the correct answer

In the opposite figure :

$\overline{AB}$ is a diameter in circle M , E $\in \overline{AM}$

where AE = EM , EC = 4 cm. , ED = 3 cm.

, then the circumference of circle M = ... cm.



(a) 4π

(b) 8π

(c) 16π

(d) 20π

$$EA \times EB = EC \times ED$$

$$(x)(\cancel{3}x) = (4)(\cancel{3})$$

$$\therefore x^2 = 4 \qquad \boxed{\therefore x = 2}$$

$$r = MB = 2x = 4$$

$$\text{Circ.} = 2\pi r$$

$$= 2 \times \pi \times 4 = 8\pi$$

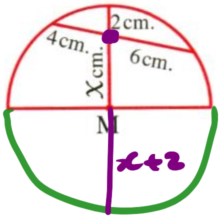
math in use BY MICHAEL GAMIL

Choose the correct answer

In the opposite figure :

A semi-circle , the center of the circle is M

, then $X =$ .... cm.



(a) 5 (b) 7 (c) 8 (d) 12

$(2)(2x+2) = 4 \times 6$

$4x + 4 = 24$

$4x = 20$ $\therefore x = 5$

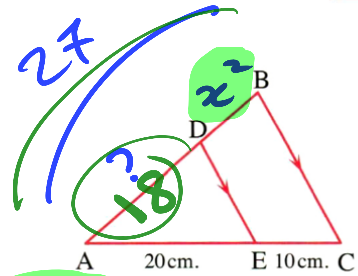
Choose the correct answer

In the opposite figure :

If $\overline{DE} \,//\, \overline{BC}$, DB = x^2 cm.

, AB = 27 cm. , AE = 20 cm. , EC = 10 cm.

, then x = ...



(a) ± 13 (b) ± 6 (c) ± 9 (d) ± 3

$\triangle AED \sim \triangle ACB$

$$\frac{AE}{AC} = \frac{AD}{AB} \Rightarrow \frac{\cancel{20}}{\cancel{30}} = \frac{AD}{27}$$

$$AD = \frac{27 \times 2}{3} = 18$$

$$x^2 = 27 - 18 = 9$$

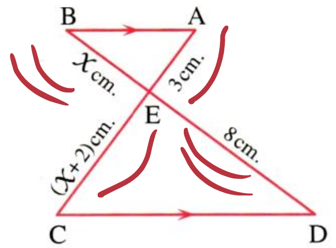
$\boxed{x = 3}$ $\boxed{x = -3}$

Choose the correct answer

In the opposite figure :

If $\overline{AB} \parallel \overline{DC}$

, then $x =$ .... cm.



(a) 6

(b) 2

(c) 4

(d) 5

$$\frac{3}{x+2} = \frac{x}{8}$$

$$x^2 + 2x = 24$$

$$x^2 + 2x - 24 = 0$$

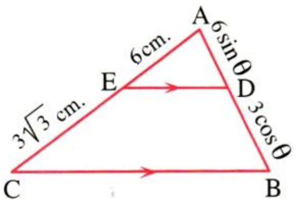
$$x = 4$$

$x = -6$

rfd.

Choose the correct answer

In the opposite figure :



$\overline{BC} \parallel \overline{DE}$, θ is an acute angle

, then DB = ... cm. $3\cos 30^\circ = \frac{3\sqrt{3}}{2}$

(a) 2 (b) $2\sqrt{3}$

(c) $\frac{3\sqrt{3}}{2}$ (d) 3

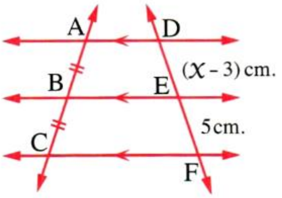
$$\frac{AD}{DB} = \frac{AE}{EC} \Rightarrow \frac{6\sin\theta}{3\cos\theta} = \frac{6}{3\sqrt{3}}$$

$$\cancel{2}\tan\theta = \frac{\cancel{2}\sqrt{3}}{3}$$

$$\tan\theta = \frac{\sqrt{3}}{3} \qquad \boxed{\therefore \theta = 30^\circ}$$

Choose the correct answer

In the opposite figure :



DE = $(x - 3)$ cm. , EF = 5 cm.

, then x = ... cm.

(a) 3

(b) 5

(c) 8

(d) 2

$DE = EF$

$x - 3 = 5$

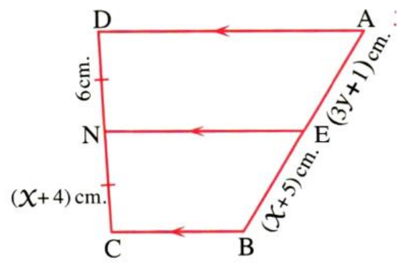
$\boxed{x = 8}$

Choose the correct answer

In the opposite figure :

If $\overline{AD} \parallel \overline{EN} \parallel \overline{BC}$

, then y = ...2...... cm.



(a) 4

(b) 3

(c) 2

(d) 6

$x + 4 = 6$

$\therefore x = 6 - 4$

$\boxed{x = 2}$

$3y + 1 = x + 5$

$3y + 1 = 7$

$3y = 6$

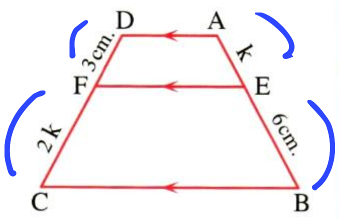
$\boxed{y = 2}$

Choose the correct answer

In the opposite figure :

If $\overline{AD} // \overline{EF} // \overline{BC}$

, then k = ... cm.



(a) 3 (b) 6

(c) 9 (d) 18

$$\frac{k}{6} = \frac{3}{2k}$$

$$2k^2 = 18$$

$$k^2 = 9$$

$$\therefore k = \sqrt{9} = 3$$

Choose the correct answer

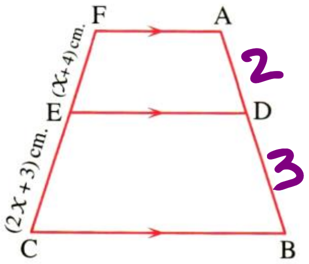
In the opposite figure :

If AD : AB = 2 : 5

, then x = ...

(a) 8 (b) 6

(c) 4 (d) 2



$$\frac{FE}{EC} = \frac{2}{3} \Rightarrow \frac{x+4}{2x+3} = \frac{2}{3}$$

$$4x + 6 = 3x + 12$$

$$4x - 3x = 12 - 6$$

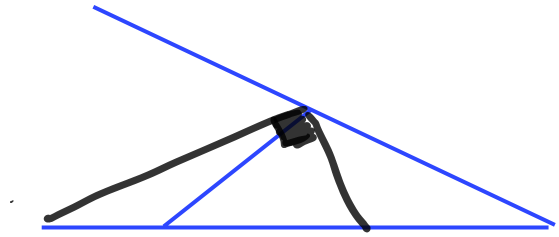
$$\boxed{x = 6}$$

Choose the correct answer

The interior and exterior bisectors of an angle at the vertex of an equilateral triangle ....

(a) are perpendicular. (b) are parallel.

(c) bisecting each other. (d) All the previous.



Choose the correct answer

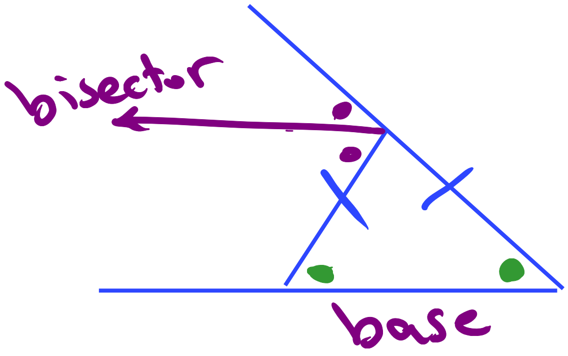
The exterior bisector of the angle at the vertex of an isosceles triangle .... the base.

(a) bisects

(b) is perpendicular to

(c) is parallel to

(d) is equal to

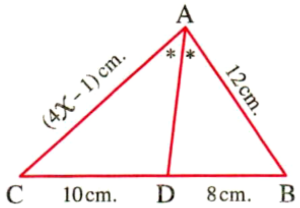


Choose the correct answer

In the opposite figure :

If $\overrightarrow{AD}$ bisects $\angle$ BAC

, then $X =$ .... cm.



3 3

(a) 3 (b) 4

(c) 4.5 (d) 6

$$\frac{AB}{AC} = \frac{BD}{CD} \Rightarrow \frac{12}{4x-1} = \frac{8}{10}$$

$$\frac{12}{4x-1} = \frac{4}{5}$$

$$4x-1 = \frac{5 \times 12}{4}$$

$$4x-1 = 15$$

$$4x = 16$$

$$\boxed{x = 4}$$

Choose the correct answer

In the opposite figure :

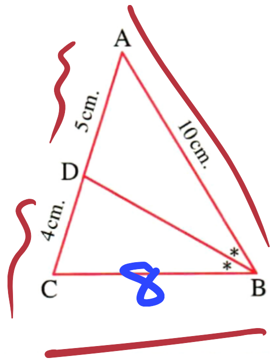
BD = …………… cm.

(a) 8

(b) $4\sqrt{2}$

(c) $2\sqrt{15}$

(d) 6



$$\frac{BA}{BC} = \frac{AD}{CD} \Rightarrow \frac{10}{BC} = \frac{5}{4}$$

$$BC = \frac{4 \times 10}{5} = 8$$

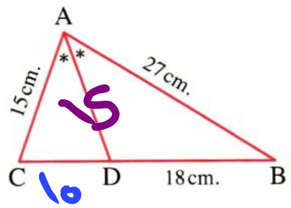
$$BD = \sqrt{BA \times BC - AD \times CD} = \sqrt{(10)(8) - (5)(4)}$$

$$= 2\sqrt{15}$$

Choose the correct answer

In the opposite figure :

The perimeter of Δ ABD = ... cm.



(a) 69

(b) 75

(c) 55

(d) 60

$$\frac{AB}{AC} = \frac{BD}{CD} \Rightarrow \frac{27}{15} = \frac{18}{CD}$$

$$\therefore CD = \frac{18 \times 15}{27} = 10$$

$$AD = \sqrt{27 \times 15 - 18 \times 10} = 15$$

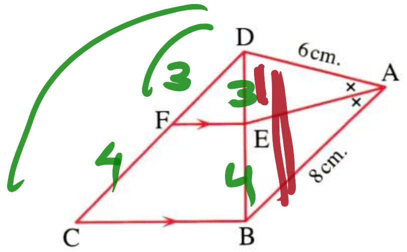
$$P.\ \Delta ABD = 15 + 18 + 27 = 60$$

Choose the correct answer

In the opposite figure :

$\overrightarrow{AE}$ bisects $\angle BAD$, $\overline{EF} \parallel \overline{BC}$

, then EF : BC = ...



(a) 3 : 4 (b) 4 : 3

(c) 3 : 7 (d) 4 : 7

$$\frac{AD}{AB} = \frac{DE}{EB} \Rightarrow \frac{6}{8} = \frac{DE}{EB}$$

$$\therefore \frac{DE}{EB} = \frac{3}{4}$$

$$\therefore \frac{EF}{BC} = \frac{DF}{DC} = \frac{DE}{DB} = \frac{3}{7}$$

Choose the correct answer

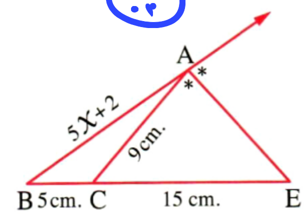
In the opposite figure :

$\overrightarrow{AE}$ is an exterior bisector of $\angle A$

, then the value of $x =$ ....

(a) 1 (b) 2

(c) 3 (d) 4



3 3

$$\frac{AC}{AB} = \frac{CE}{BE} \Rightarrow \frac{9}{5x+2} = \frac{15}{20}$$

$$\frac{9}{5x+2} = \frac{3}{4}$$

$$5x+2 = \frac{4 \times 9}{3}$$

$$5x+2 = 12$$

$$5x = 10$$

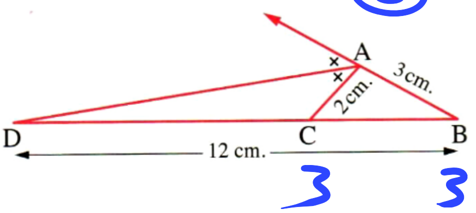
$$\boxed{\therefore x = 2}$$

Choose the correct answer

In the opposite figure :

$\overrightarrow{AD}$ bisects $\angle A$ externally , $AB = 3$ cm. , $AC = 2$ cm.

, $BC = 12$ cm. , then $CD =$ .... cm.



(a) 8 (b) 6

(c) 4.8 (d) 5

$$\frac{AB}{AC} = \frac{BD}{CD} \Rightarrow \frac{3}{2} = \frac{12}{CD}$$

$$\therefore CD = \frac{2 \times 12}{3} = 8$$

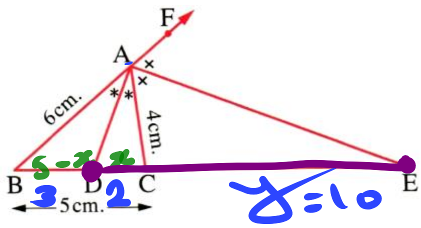
Choose the correct answer

In the opposite figure :

$\overrightarrow{AD}$ bisects $\angle$ BAC , $\overrightarrow{AE}$ bisects the exterior $\angle$ A

, BC = 5 cm. , DE = 2 + 10 cm.

12



(a) 10

(b) 11

(c) 12

(d) 13

$$\frac{4}{6} = \frac{x}{5-x}$$

$$6x = 20 - 4x$$

$$6x + 4x = 20$$

$$10x = 20$$

$$x = 2$$

$$\frac{4}{6} = \frac{y}{5+y}$$

$$6y = 20 + 4y$$

$$6y - 4y = 20$$

$$2y = 20$$

$$\boxed{y = 10}$$

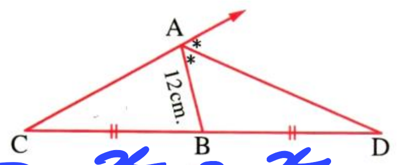
Choose the correct answer

In the opposite figure :

If $\overrightarrow{AD}$ bisects the exterior angle of the triangle at $\angle A$, B is the midpoint of $\overline{CD}$, AB = 12 cm.

, then AC = ... cm.

(a) 12 (b) 6 (c) 24 (d) 8



3 x 3 x

$$\frac{AB}{AC} = \frac{BD}{CD} \Rightarrow \frac{12}{AC} = \frac{1\cancel{x}}{2\cancel{x}}$$

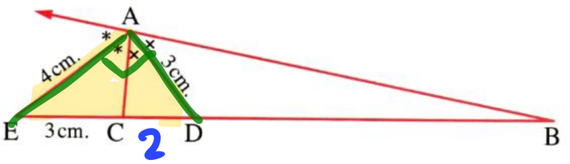
$\therefore AC = 2 \times 12 = 24$

Choose the correct answer

In the opposite figure :

If AD = 3 cm. , AE = 4 cm. , CE = 3 cm.

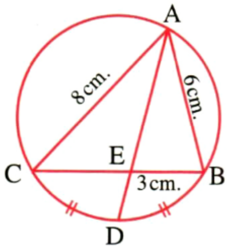
, then DC = ... cm.



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

Choose the correct answer

In the opposite figure :



m $(\overset{\frown}{BD})$ = m $(\overset{\frown}{CD})$

, then the length of $\overline{AE}$ = ... cm.

(a) $4\sqrt{2}$

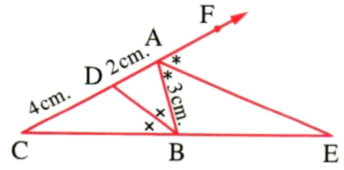
(b) $2\sqrt{3}$

(c) 4

(d) 6

Choose the correct answer

In the opposite figure :



$\overrightarrow{AE}$ bisects ($\angle$ BAF) , AD = 2 cm.

, DC = 4 cm. , AB = 3 cm.

, then BE = ... cm.

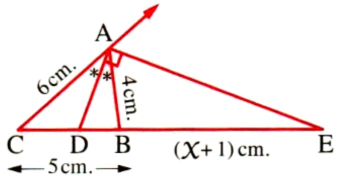
(a) 3 (b) 4 (c) 5 (d) 6

Choose the correct answer

In the opposite figure :

If $\overrightarrow{AD}$ bisects $\angle CAB$, $\overline{AE} \perp \overline{AD}$

, $x =$ .... cm.



(a) 8

(b) 9

(c) 11

(d) 10

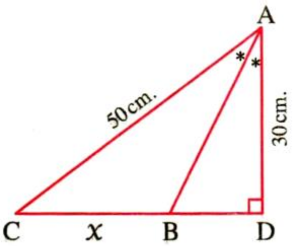
Choose the correct answer

In the opposite figure :

ADC is a right-angled triangle at D

, AD = 30 cm. , AC = 50 cm , $\overrightarrow{AB}$ bisects $\angle$ A

and intersects $\overline{CD}$ at B , then $x =$ ....



(a) 5 (b) 10

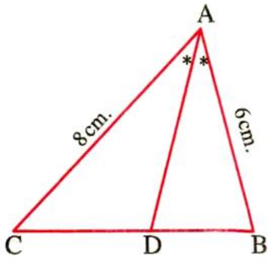
(c) 25 (d) 20

Choose the correct answer

In the opposite figure :

$\overrightarrow{AD}$ bisects $\angle BAC$

, then $\frac{a(\Delta ABD)}{a(\Delta ADC)} = \dots\dots\dots\dots$



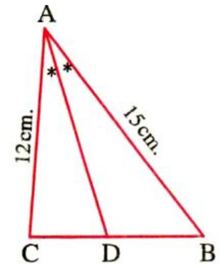
(a) 3 : 7
(b) 3 : 4
(c) 81 : 144
(d) 9 : 49

Choose the correct answer

In the opposite figure :

If the area of Δ ABC = 72 cm^2.

, then the area of Δ ADB = ... cm^2.



(a) 24 (b) 28

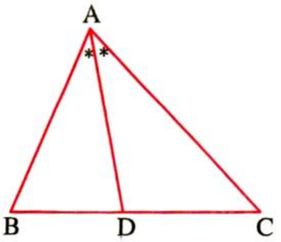
(c) 32 (d) 40

Choose the correct answer

In the opposite figure :

If $AB \times AC = 10$ cm. , $BD \times DC = 6$ cm.

, then $AD =$ .... cm.



(a) 2

(b) 4

(c) 8

(d) 10

Goodlcuk