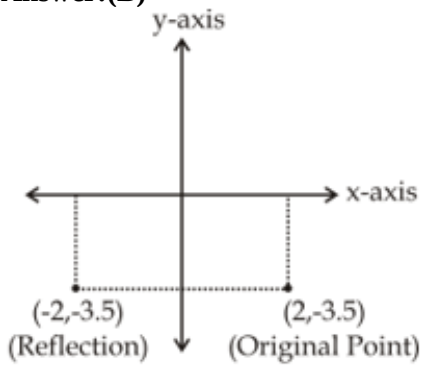
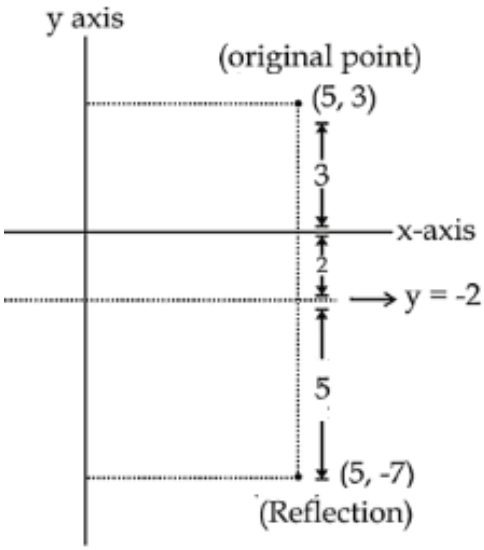
Coordinate Geometry Solution

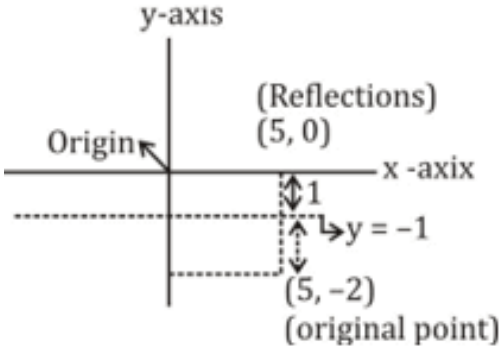
1- Answer:(B)



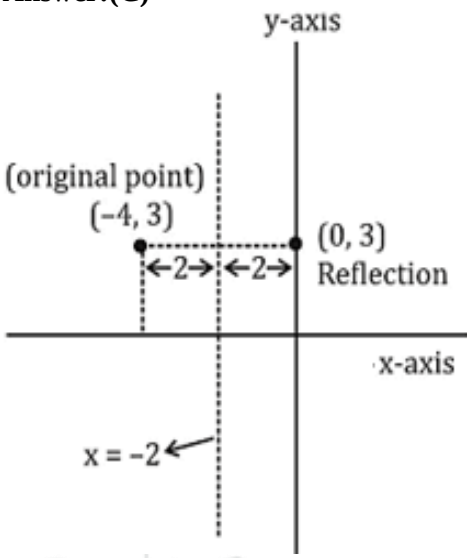
2- Answer:(D)



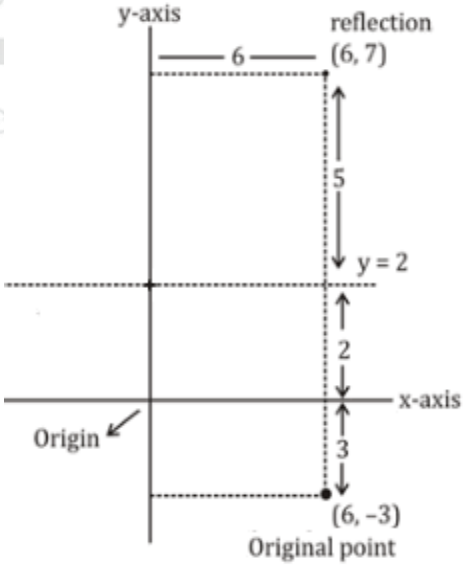
3- Answer:(C)



4- Answer:(C)



5- Answer:(B)



6 - Answer:(D)

Let vertex of C be (x, y)

$\therefore \frac{3+0+x}{3} = 1 \Rightarrow x = 0$

and $\frac{-4+5+y}{3} = -4 \Rightarrow y = -13$

7. Answer:(B)

Coordinates of centroid of triangle

$= \left(\frac{x_1+x_2+x_3}{3}, \frac{y_1+y_2+y_3}{3}\right)$

$= \left(\frac{1-4+3}{3}, \frac{-5+0-4}{3}\right)$

= (0, -3)

8 - Answer: (B)

K:1

S (5,1) — T (x,0) — U (-1,-2)

We know,

$0 = \frac{1 \times 1 - 2k}{k+1} \rightarrow k = \frac{1}{2}$

∴ Required ratio = 1 : 2

9 - Answer: (C)

A (x,y) — P (3,1) — B (5,-4)

We know,

$\frac{y-4}{2} = 1 \Rightarrow y = 6$

And,

$\frac{x+5}{2} = 3 \Rightarrow x = 1$

∴ A(1, 6) is the required coordina

10 - Answer: (D)

A(2, 1)

B — 2 — 3 — C

$\frac{2 \times y - 3 \times 3}{2+3} = 1$

$\Rightarrow 2y - 9 = 5$

$\Rightarrow y = 7$

11 - Answer: (A)

$\text{Centroid} = \left(\frac{x_1+x_2+x_3}{3}, \frac{y_1+y_2+y_3}{3}\right)$

$= \left(\frac{1+4+(-2)}{3}, \frac{-5+0+2}{3}\right)$

= (1, -1)

12 - Answer: (B)

k : 1

(2,3) — (0,y) — (-2,1)

By section formula,

$\frac{-2k+2}{k+1} = 0$

$-2k + 2 = 0$

$k = 1$

∴ ratio = 1 : 1

13 - Answer:(A)

We know,

$\text{Centroid of triangle} = \left(\frac{x_1+x_2+x_3}{3}, \frac{y_1+y_2+y_3}{3}\right)$

$(2,2) = \left(\frac{7+1+x}{3}, \frac{-1+2+y}{3}\right)$

$\therefore \frac{7+1+x}{3} = 2 \Rightarrow x = -2$

and,

$\frac{-1+2+y}{3} = 2 \Rightarrow y = 5$

14 - Answer: (A)

A (-5,y) — P (-2,5) — B (x,3)

Now, ATQ,

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

$\Rightarrow -4 = -5 + x$

$\Rightarrow x = 1$

15 - Answer: (B)

We know

Distance b/w two points = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$\Rightarrow 13 = \sqrt{(k-2)^2 + (-5-7)^2}$

$\Rightarrow 169 = k^2 + 4 - 4k + 144$

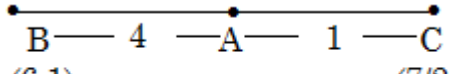
$\Rightarrow k^2 - 4k - 21 = 0$

$\Rightarrow k^2 - 7k + 3k - 21 = 0$

$\Rightarrow k(k-7) + 3(k-7) = 0$

$\Rightarrow k = -3, 7$

16 - Answer: (B)

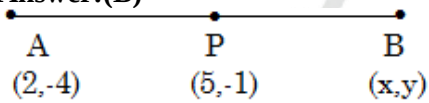


By section formula,

Point A = $\left(\frac{4\times\frac{7}{2}+1\times6}{4+1}, \frac{4\times6+1\times1}{4+1}\right)$

= (4, 5)

17- Answer:(B)



∵ P is a mid-point

$\therefore \frac{x+2}{2} = 5 \text{ and } \frac{y-4}{2} = -1$

x= 8 and y = 2

∴ B (x, y) = (8, 2)

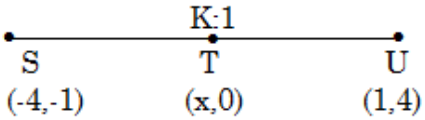
18- Answer:(B)

Distance between points =

$\sqrt{(-2-3)^2 + (-6-6)^2} = 13$

19- Answer:(A)

Let the ratio be K:1



By section formula

$\frac{4K + 1 \times (-1)}{K+1} = 0$

4K = 1

$K = \frac{1}{4}$

∴ The required ratio is 1: 4

20- Answer:(D)