



## Quadratic Equations Ex 8.6 Q2

**Answer :**

(i) The given quadric equation is  $kx^2 + 4x + 1 = 0$ , and roots are real and equal  
Then find the value of  $k$ .

Here,  $a = k, b = 4$  and  $c = 1$

As we know that  $D = b^2 - 4ac$

Putting the value of  $a = k, b = 4$  and  $c = 1$

$$= (4)^2 - 4 \times k \times 1$$

$$= 16 - 4k$$

The given equation will have real and equal roots, if  $D = 0$

Thus,

$$16 - 4k = 0$$

$$4k = 16$$

$$k = 4$$

Therefore, the value of  $k = \boxed{4}$

(ii) The given quadric equation is  $kx^2 - 2\sqrt{5}x + 4 = 0$ , and roots are real and equal  
Then find the value of  $k$ .

Here,  $a = k, b = -2\sqrt{5}$  and  $c = 4$

As we know that  $D = b^2 - 4ac$

Putting the value of  $a = k, b = -2\sqrt{5}$  and  $c = 4$

$$= (2\sqrt{5})^2 - 4 \times k \times 4$$

$$= 20 - 16k$$

The given equation will have real and equal roots, if  $D = 0$

Thus,

Therefore, the value of  $k = \boxed{\frac{5}{4}}$

(iii) The given quadric equation is  $3x^2 - 5x + 2k = 0$ , and roots are real and equal  
Then find the value of  $k$ .

Here,  $a = 3, b = -5$  and  $c = 2k$

As we know that  $D = b^2 - 4ac$

Putting the value of  $a = 3, b = -5$  and  $c = 2k$

$$= (-5)^2 - 4 \times 3 \times k$$

$$= 25 - 12k$$

The given equation will have real and equal roots, if  $D = 0$

Thus,

Therefore, the value of  $k = \boxed{\frac{25}{24}}$

(iv) The given quadric equation is  $4x^2 + kx + 9 = 0$ , and roots are real and equal  
Then find the value of  $k$ .

Here,  $a = 4, b = k$  and  $c = 9$

As we know that  $D = b^2 - 4ac$

Putting the value of  $a = 4, b = k$  and  $c = 9$

$$= (k)^2 - 4 \times 4 \times 9$$

$$= k^2 - 144$$

The given equation will have real and equal roots, if  $D = 0$

Thus,

Therefore, the value of  $k = \boxed{\pm 12}$

(v) The given quadric equation is  $2kx^2 - 40x + 25 = 0$ , and roots are real and equal

Then find the value of  $k$ .

Here,  $a = 2k, b = -40$  and  $c = 25$

As we know that  $D = b^2 - 4ac$

Putting the value of  $a = 2k, b = -40$  and  $c = 25$

$$= (-40)^2 - 4 \times 2k \times 25$$

$$= 1600 - 200k$$

The given equation will have real and equal roots, if  $D = 0$

Thus,

$$1600 - 200k = 0$$

$$200k = 1600$$

$$k = \frac{1600}{200}$$

$$= 8$$

Therefore, the value of  $k = \boxed{8}$

\*\*\*\*\* END \*\*\*\*\*