

18 Find the quadratic equation in which each of the two roots is twice one of the roots of the equation $2x^2 - 8x + 5 = 0$

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$x^2 - (L_1 + M_1)x + L_1 \cdot M_1 = 0$ L_1, M_1

$$\frac{2x^2}{2} - \frac{8x}{2} + \frac{5}{2} = \frac{0}{2}$$

$$x^2 - 4x + \frac{5}{2} = 0$$

$$L_2 + M_2 = 4$$

$$L_2 \cdot M_2 = \frac{5}{2}$$

$$L_1 = 2L_2$$

$$M_1 = 2M_2$$

$$L_1 + M_1 = 2L_2 + 2M_2$$

$$= 2(L_2 + M_2) = 2 \times 4 = 8$$

$$L_1 \cdot M_1 = 2L_2 \cdot 2M_2$$

$$= 4L_2 \cdot M_2 = 4 \times \frac{5}{2} = 10$$

$$x^2 - 8x + 10 = 0$$

$$ax^2 + bx + c = 0$$

- 12 Find the value of c, if the two roots of the equation $cx^2 - 12x + 9 = 0$ are equal.
- 13 Find the value of a, if the two roots of the equation $x^2 - 3x + 2 + \frac{1}{a} = 0$ are equal.
- 14 Find the value of c, if the two roots of the equation $3x^2 - 5x + c = 0$ are equal, then find the two roots.

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12) $a = c$ $b = -12$, $c = 9$

$$L + M = \frac{-b}{a}$$

$$LM = \frac{c}{a}$$

$$x^2 - (L+M)x + LM = 0$$

$$L + M = 12$$

$$LM = 9$$

$$b^2 - 4ac = 0$$

$$(-12)^2 - 4 \times c \times 9 = 0$$

$$\frac{36c = 144}{36 \quad 36}$$

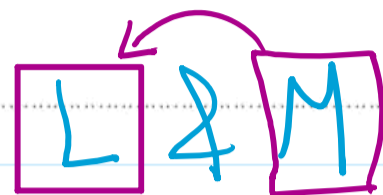
$$c = 4$$

Relation between the two roots (Cont.8)

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15 Find the value of K, if one a root of the equation $x^2 + (K - 1)x - 3 = 0$ is the additive inverse to the other root.

16 Find the value of K, if one root of the equation $4Kx^2 + 7x + K^2 + 4 = 0$ is the multiplicative inverse to the other root.



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15 $x^2 - (L+M)x + LM = 0$

$L+M = -(K-1)$

$LM = -3$

if first root = L then second root = -L

$M = -L$

~~$L + (-L) = -K + 1$~~
 $0 = -K + 1$

$K = 1$

find the two roots

$L+M = -(1-1)$

$L+M = 0$

$LM = -3$

$x^2 - 3 = 0$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$-5i$ & $5i$

17 Form the quadratic equation whose two roots are :

A $-2, 4$

$1 - 3i, 1 + 3i$

B $-5i, 5i$

E $3 - 2\sqrt{2}i, 3 + 2\sqrt{2}i$

C $\frac{2}{3}, \frac{3}{2}$

Two root

$ax^2 + bx + c = 0$

$x^2 - (L+M)x + LM = 0$

$L = -5i$ & $M = 5i$

$L+M = 0$ $LM = 25$

$x^2 + 25 = 0$

$L.M = (-5i \times 5i)$
 $= \times 25 (i^2) = \boxed{25}$