

**CLASS NOTES-ANSWERS****EXERCISE 2.6**

1. Solve the following equations.

(a) $\frac{8x-3}{3x} = 2$

(b) $\frac{9x}{7-6x} = 15$

(c) $\frac{z}{z+15} = \frac{4}{9}$

(d) $\frac{3y+4}{2-6y} = \frac{-2}{5}$

(e) $\frac{7y+4}{y+2} = \frac{-4}{3}$

Answer:

(a) $\frac{8x-3}{3x} = 2$

On multiplying both sides by $3x$

$$8x - 3 = 6x$$

$$8x - 6x = 3$$

$$2x = 3$$

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

(b) $\frac{9x}{7-6x} = 15$

On multiplying both sides by $7 - 6x$,

$$9x = 15(7 - 6x)$$

$$9x = 105 - 90x$$

$$9x + 90x = 105$$

$$99x = 105$$

$$x = \frac{105}{99}$$

$$x = \frac{35}{33}$$





$$(c) \frac{z}{z+15} = \frac{4}{9}$$

On multiplying both sides by $9(z+15)$,

$$9z = 4(z + 15)$$

$$9z = 4z + 60$$

$$9z - 4z = 60$$

$$5z = 60$$

$$z = 12$$

$$(d) \frac{3y+4}{2-6y} = \frac{-2}{5}$$

On multiplying both sides by $5(2 - 6y)$,

$$5(3y + 4) = -2(2 - 6y)$$

$$15y + 20 = -4 + 12y$$

$$15y - 12y = -4 - 20$$

$$3y = -24$$

$$y = -8$$

$$(e) \frac{7y+4}{y+2} = \frac{-4}{3}$$

On multiplying both sides by $3(y + 2)$,

$$3(7y + 4) = -4(y + 2)$$

$$21y + 12 = -4y - 8$$

$$21y + 4y = -8 - 12$$

$$25y = -20$$

$$y = \frac{-4}{5}$$



2. The ages of Hari and Harry are in the ratio 5:7. Four years from now the ratio of their ages will be 3:4. Find their present ages.

Answer:

Hari's age and Harry's age will be $5x$ years and $7x$ years respectively.

Four years later, their ages will be $(5x + 4)$ years and $(7x + 4)$ years respectively.

$$\frac{5x+4}{7x+4} = \frac{3}{4}$$

$$4(5x + 4) = 3(7x + 4)$$

$$20x + 16 = 21x + 12$$

$$16 - 12 = 21x - 20x$$

$$4 = x$$

Hari's age = $5x$ years = (5×4) years = 20 years

Harry's age = $7x$ years = (7×4) years = 28 years

Therefore, Hari's age and Harry's age are 20 years and 28 years respectively.

3. The denominator of a rational number is greater than its numerator by 8. If the numerator is increased by 17 and the denominator is decreased by 1, the number obtained is $\frac{3}{2}$. Find the rational number.

Answer:

Let the numerator of the rational number be x

Therefore, its denominator will be $x + 8$

The rational number will be $\frac{x}{x+8}$



$$\frac{x+17}{x+8-1} = \frac{3}{2}$$

$$\frac{x+17}{x+7} = \frac{3}{2}$$

$$2(x+17) = 3(x+7)$$

$$2x+34 = 3x+21$$

$$34-21 = 3x-2x$$

$$13 = x$$

Numerator of the Rational Number = 13

Denominator of the Rational Number = $x+8$

$$= 13+8$$

$$= 21$$

$$\text{Rational Number} = \frac{13}{21}$$

