

EXERCISE 11E

PAGE: 133

Simplify:

1. $\frac{x}{2} + \frac{x}{4}$

Solution:

$$\begin{aligned} & \frac{x}{2} + \frac{x}{4} \\ & \text{Taking LCM} \\ & = \frac{(2x + x)}{4} \\ & = \frac{3x}{4} \end{aligned}$$

2. $\frac{a}{10} + \frac{2a}{5}$

Solution:

$$\begin{aligned} & \frac{a}{10} + \frac{2a}{5} \\ & \text{Taking LCM} \\ & = \frac{(a + 4a)}{10} \\ & = \frac{5a}{10} \\ & = \frac{a}{2} \end{aligned}$$

3. $\frac{y}{4} + \frac{3y}{5}$

Solution:

$$\begin{aligned} & \frac{y}{4} + \frac{3y}{5} \\ & \text{Taking LCM} \\ & = \frac{(5y + 12y)}{20} \\ & = \frac{17y}{20} \end{aligned}$$

4. $\frac{x}{2} - \frac{x}{8}$

Solution:

$$\begin{aligned} & \frac{x}{2} - \frac{x}{8} \\ & \text{Taking LCM} \\ & = \frac{(4x - x)}{8} \\ & = \frac{3x}{8} \end{aligned}$$

5. $\frac{3y}{4} - \frac{y}{5}$

Solution:

$$\begin{aligned} & \frac{3y}{4} - \frac{y}{5} \\ & \text{Taking LCM} \\ & = \frac{(15y - 4y)}{20} \\ & = \frac{11y}{20} \end{aligned}$$

6. $\frac{2p}{3} - \frac{3p}{5}$

Solution:

$$\begin{aligned} & \frac{2p}{3} - \frac{3p}{5} \\ & \text{Taking LCM} \\ & = \frac{(10p - 9p)}{15} \end{aligned}$$

$$= p/15$$

7. $k/2 + k/3 + 2k/5$

Solution:

$$k/2 + k/3 + 2k/5$$

Here the LCM of 2, 3 and 5 is 30

$$= (15k + 10k + 12k)/ 30$$

$$= 37k/30$$

8. $2x/5 + 3x/4 - 3x/5$

Solution:

$$2x/5 + 3x/4 - 3x/5$$

Here the LCM of 5 and 4 is 20

$$= (8x + 15x - 12x)/ 20$$

$$= 11x/20$$

9. $4a/7 - 2a/3 + a/7$

Solution:

$$4a/7 - 2a/3 + a/7$$

Here the LCM of 3 and 7 is 21

$$= (12a - 14a + 3a)/ 21$$

$$= a/21$$

10. $2b/5 - 7b/15 + 13b/3$

Solution:

$$2b/5 - 7b/15 + 13b/3$$

Here the LCM of 3, 5 and 15 is 15

$$= (6b - 7b + 65b)/ 15$$

$$= 64b/15$$

11. $6k/7 - (8k/9 - k/3)$

Solution:

$$6k/7 - (8k/9 - k/3)$$

Here the LCM of 7, 9 and 3 is 63

$$= [54k - (56k - 21k)]/ 63$$

By further calculation

$$= (54k - 35k)/ 63$$

$$= 19k/63$$

12. $3a/8 + 4a/5 - (a/2 + 2a/5)$

Solution:

$$3a/8 + 4a/5 - (a/2 + 2a/5)$$

Here the LCM of 8, 5 and 2 is 40

$$= [15a + 32a - (20a + 16a)]/ 40$$

By further calculation
 $= (47a - 36a) / 40$
 $= 11a/40$

13. $x + x/2 + x/3$

Solution:

$$x + x/2 + x/3$$

Taking LCM
 $= (6x + 3x + 2x) / 6$
 $= 11x/6$

14. $y/5 + y - 19y/15$

Solution:

$$y/5 + y - 19y/15$$

Here the LCM of 5 and 15 is 15
 $= (3y + 15y - 19y) / 15$
So we get
 $= -y/15$

15. $x/5 + (x + 1)/2$

Solution:

$$x/5 + (x + 1)/2$$

Here the LCM of 5 and 2 is 10
 $= (2x + 5x + 5) / 10$
 $= (7x + 5) / 10$