EXERCISE 1.1

1. Name the property under multiplication used in each of the following.

   (i) $\dfrac{-4}{5} \times 1 = 1 \times \dfrac{-4}{5} = -\dfrac{4}{5}$

   (ii) $-\dfrac{13}{17} \times \dfrac{-2}{7} = \dfrac{-2}{7} \times \dfrac{-13}{17}$

   (iii) $\dfrac{-19}{29} \times \dfrac{29}{-19} = 1$

2. Tell what property allows you to compute $\dfrac{1}{3} \times \left(6 \times \dfrac{4}{3} \right)$ as $\left(\dfrac{1}{3} \times 6 \right) \times \dfrac{4}{3}$.

3. The product of two rational numbers is always a _____.

Simplify and solve the following linear equations.

7. $3(t - 3) = 5(2t + 1)$ **8.** $15(y - 4) - 2(y - 9) + 5(y + 6) = 0$

Solve the following linear equations.

1. $\dfrac{x}{2} - \dfrac{1}{5} = \dfrac{x}{3} + \dfrac{1}{4}$

2. $\dfrac{n}{2} - \dfrac{3n}{4} + \dfrac{5n}{6} = 21$

(b) Subtract $3xy + 5yz - 7zx$ from $5xy - 2yz - 2zx + 10xyz$

(c) Subtract $4p^2q - 3pq + 5pq^2 - 8p + 7q - 10$ from

$18 - 3p - 11q + 5pq - 2pq^2 + 5p^2q$

$$- 3x + 5xy - 5yx - 5y - 3x + 2xy - 5y \quad \text{(Addi}$$

Example 9: Multiply

(i) $(a + 7)$ and $(b - 5)$

(ii) $(a^2 + 2b^2)$ and $(5a - 3b)$

5. Find the value of m for which $5^m \div 5^{-3} = 5^5$.

6. Evaluate (i) $\left\{ \left(\dfrac{1}{3}\right)^{-1} - \left(\dfrac{1}{4}\right)^{-1} \right\}^{-1}$ (ii) $\left(\dfrac{5}{8}\right)^{-7} \times \left(\dfrac{8}{5}\right)^{-4}$

7. Simplify.

(i) $\dfrac{25 \times t^{-4}}{5^{-3} \times 10 \times t^{-8}}$ $(t \neq 0)$

2. Express the following numbers in usual form.

   (i) 3.02×10^{-6} (ii) 4.5×10^4 (iii) 3×10^{-8}

   (iv) 1.0001×10^9 (v) 5.8×10^{12} (vi) 3.61492×10^6

Example 2: An electric pole, 14 metres high, casts a shadow of 10 metres. Find the height of a tree that casts a shadow of 15 metres under similar conditions.

2. In a Television game show, the prize money of ₹ 1,00,000 is to be divided equally amongst the winners. Complete the following table and find whether the prize money given to an individual winner is directly or inversely proportional to the number of winners?

Number of winners	1	2	4	5	8	10	20
Prize for each winner (in ₹)	1,00,000	50,000	...	...	...	...	...

Example 35 : One of the diagonals of a rhombus and its sides are equal. Find the angles of the rhombus.

(d) All angles are equal.

12. What is the maximum number of obtuse angles that a quadrilateral can have ?

(a) 1   (b) 2   (c) 3   (d) 4

13. How many non-overlapping triangles can we make in a n-gon (polygon having n sides), by joining the vertices?

(a) $n-1$ (b) $n-2$ (c) $n-3$ (d) $n-4$

14. What is the sum of all the angles of a pentagon?

(a) 180°   (b) 360°   (c) 540°   (d) 720°

15. What is the sum of all angles of a hexagon?

(a) 180°   (b) 360°   (c) 540°   (d) 720°

16. If two adjacent angles of a parallelogram are $(5x-5)°$ and $(10x+35)°$, then the ratio of these angles is

(a) 1 : 3   (b) 2 : 3   (c) 1 : 4   (d) 1 : 2

48. PQRS is a trapezium in which PQ||SR and $\angle P = 130°$, $\angle Q = 110°$. Then $\angle R$ is equal to:

(a) 70° (b) 50° (c) 65° (d) 55°

49. The number of sides of a regular polygon whose each interior angle is of 135° is

(a) 6 (b) 7 (c) 8 (d) 9

74. Find the values of x and y if a and b are in inverse proportion:

a. 12 x 8

b. 30 5 y

87. 44 cows can graze a field in 9 days. How many less/more cows will graze the same field in 12 days?