Student name:

1   Solve each of the following equations for x:

    a $2 - 3x = 4$ **b** $\dfrac{2x - 3}{6} = 5$

    c $2(3 - 2x) = 5x - 4$ **d** $\dfrac{5x - 2}{6} + \dfrac{2 - 4x}{5} = 1$

2   Solve the simultaneous equations:

$$2x + 0.4y = 8$$
$$5x - 1.2y = 9$$

3   Solve the inequality $5x - 4 > 21 - 5x$.

4   A man was 32 years old when his daughter was born. He is now five times as old as his daughter. How old is his daughter now?

5   I think of a pair of numbers. If I add 11 to the first, I obtain a number that is twice the second. If I add 20 to the second, I obtain a number which is twice the first. What are the numbers?

6   Make P the subject of the formula $I = \dfrac{PRT}{100}$.

7   Make x the subject of the formula $y = \dfrac{2 - x}{3 + 2x}$.

8   If $v = u + at$, $v = 12$, $u = 2$ and $a = 4$, find the value of t.

9   The perimeter of a square is not more than 80 cm. What is the largest possible area of the square?

10   Solve the inequality $1 + \dfrac{1 - 2x}{3} > 10$.

11   Solve each of the following literal equations for x:

    a $a(x + b) = \dfrac{x + a}{a}$ **b** $\dfrac{m}{x} + \dfrac{n}{x} = 1$

    c $m(x + n) = n(x + m) + m$

12   The sum of two numbers is 100 and their difference is 200. What are the two numbers?

13   Make m the subject of the formula $\dfrac{2}{m} - \dfrac{3}{n} = \dfrac{1}{p}$.

Answers

1 **a** $x = -\dfrac{2}{3}$ **b** $x = \dfrac{33}{2}$

  c $x = \dfrac{10}{9}$ **d** $x = 28$

2 $x = 3, y = 5$

3 $x > 2.5$

4 The daughter is 8 years old.

5 The first number is 17 and the second number is 14.

6 $P = \dfrac{100I}{RT}$

7 $x = \dfrac{2 - 3y}{1 + 2y}$

8 $t = 2.5$

9 The largest possible area of the square is 400 cm^2.

10 $x < -13$

11 **a** $x = \dfrac{a - a^2 b}{a^2 - 1}$ **b** $x = m + n$ **c** $x = \dfrac{m}{m - n}$

12 150 and -50

13 $m = \dfrac{2np}{3p + n}$