



# Year 9 Mathematics

## Equations Practice Test 1

Name \_\_\_\_\_

1 State whether each of the following equations is linear

a)  $2x + 6 = x + 1$

b)  $x^2 - 5 = x$

c)  $\frac{1}{2} - \frac{1}{x} = \frac{x+2}{3}$

2 Write linear equations for each of the following statements, using  $x$  to represent the unknown. (Do not attempt to solve the equations.)

a When 6 is subtracted from a certain number, the result is 15.

b Three more than seven times a certain number is zero.

c When dividing a certain number by 2, the answer is 4 more than that certain number.

3 Solve each of the following linear equations.

a)  $x - 79 = 153$

b)  $x + 46 = 82$

c)  $6x = 102$

d)  $\frac{x}{7} = 19$

4 Solve each of the following linear equations.

a)  $4 + y = 2$

b)  $5y = 11$

5 Solve the following linear equations.

a)  $2y + 4 = 12$

b)  $-6 - 2x = 12$

6 Solve the following linear equations.

a)  $4 - x = 10$

b)  $-\frac{x}{4} = 11$

7 Solve the following linear equations.

a)  $\frac{x+1}{2} = 11$

b)  $\frac{7-x}{5} = -6.3$

8 Solve each of the following linear equations.

a)  $5y = 3y + 4$

b)  $7x + 5 = 2 - 4x$

9 Solve each of the following linear equations.

a)  $7(x - 5) = 28$

b)  $6(x + 3) = 7$

- 10 If 3 is added to a certain number and the result is multiplied by 12, the answer is 108. Find the original number.
- 11 Taxi charges are \$3.75 plus \$1.53 per kilometre for any trip in Sydney. If Elena's taxi fare was \$42.00, how far did she travel?
- 12 The SIVA car rental company charges \$50 per day plus \$1.20 per kilometre for a car rental. The HURTS company charges \$40 per day plus \$1.35 per kilometre. Nathan wishes to rent a car for 3 days. How far can he travel so that the cost from either company is the same?
- 13 Solve each of the following linear inequalities.
- a)  $x + 3 \leq 4$       b)  $4x - 1 < -2$       c)  $6x - 7 \geq 3x + 5$
- 14 Solve each of the following linear inequalities.
- a)  $-3m + 5 < -7$       b)  $5(x - 2) \geq 7(x + 3)$
- 15 Rearrange each formula to make  $x$  the subject.
- a)  $y = kx + m$       b)  $6(y + 1) = 7(x - 2)$
- 16 For each of the following make the variable, shown in brackets, the subject of the formula.
- a)  $g = 6d - 3$  [d]      b)  $a = \frac{v - u}{t}$  [v]

## Answers

1 a) Linear      b) Not linear      c) Not linear

2 a)  $x - 6 = 15$       b)  $7x + 3 = 0$       c)  $\frac{x}{2} = x + 4$

3 a)  $x = 232$       b)  $x = 36$       c)  $x = 17$       d)  $x = 133$

4 a)  $y = -2$       b)  $2\frac{1}{5}$

5 a)  $y = 4$       b)  $x = -9$

6 a)  $x = -6$       b)  $x = -44$

7 a)  $x = 21$       b)  $x = 38.5$

8 a)  $y = 2$       b)  $x = -\frac{3}{11}$

9 a)  $x = 9$       b)  $x = -\frac{11}{6}$

10 The original number was 6

11 Elena's journey was 25 kilometres.

12 If Nathan travels 200 km over 3 days the cost will be the same.

13 a)  $x \leq 1$       b)  $x < -\frac{1}{4}$       c)  $x \geq 4$

14 a)  $m > 4$       b)  $x \leq -15\frac{1}{2}$

15 a)  $x = \frac{y-m}{k}$       b)  $x = \frac{6y+20}{7}$

16 a)  $d = \frac{g+3}{6}$       b)  $v = at + u$