

1. Here is a quadratic sequence.

$$-1, 2, 7, 14, 23,$$

(i) Write down the Nth term.

$$n^2 - 2$$

.....
(3 marks)

2. Coordinate $A = (-6, 8)$ and coordinate $B = (14, -2)$.

Write down the midpoint of AB

$$(4, 3)$$

.....
(2 marks)

3. Simplify $5y^2 + 13 - 7y + y^2 + 5 - 3y$

$$6y^2 + 18 - 10y$$

.....
(2 marks)

4. Simplify $4y^3 + y^3 + 7h^3$

$$12y^3$$

.....
(1 mark)

5. $a = 5$ $b = 3$ $c = -2$

Work out the value of $ab + 2c$

$$11$$

.....
(2 marks)

6. Simplify $5a^2b \times 4ab^3$

$$20a^3b^4$$

.....
(2 marks)

7. Simplify $\frac{15e^4f^6}{3e^2f}$

$$5e^2f^5$$

.....
(2 marks)

8. Simplify $(5t^{-6})^3$

$$125t^{-18}$$

.....
(2 marks)

9. Simplify $\frac{6a^4 \times 2a^6}{3a^2}$

$$4a^8$$

.....
(2 marks)

10. Expand $7t(3 + 9t)$

$21t + 63t^2$

 (1 mark)

11. Factorise $6m^2 + 21m$

$3m(2m + 7)$

 (2 marks)

12. Expand and simplify. $(2x - 1)(x + 4)$

$2x^2 + 7x - 4$

 (2 marks)

13. Factorise $x^2 - 8x + 12$

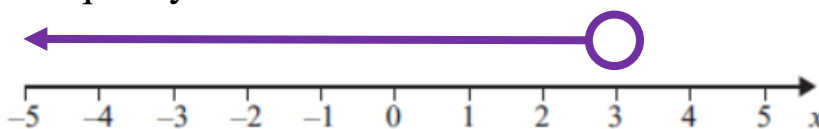
$(x - 2)(x - 6)$

 (2 marks)

14. Solve $8x - 9 = 7x - 1$

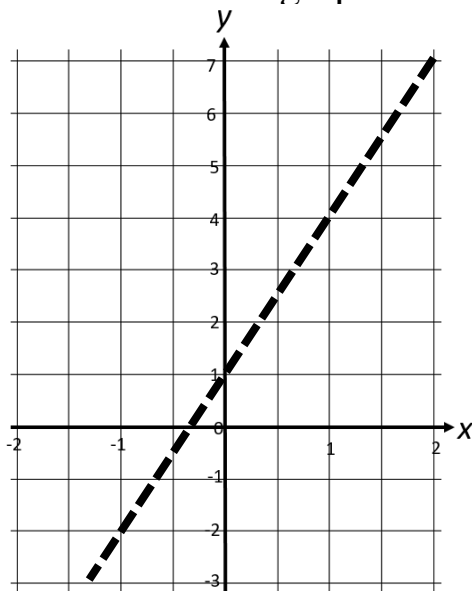
$x = \dots\dots\dots 8$
 (2 marks)

15. Show the inequality $2x + 1 < 7$ on the number line below.



(2 marks)

16. Below is a linear graph.



(i) Write down the gradient.

3

(ii) Write down the y intercept

1

(iii) Write down the equation of the line.

$y = 3x + 1$

(4 marks)

Score =