Algebra review

1) Rearrange this equation to make b the subject.

$$a = \frac{b}{5} - 9$$

Answer $b =$ ..... [2]

2) **(a)** Multiply out the brackets.

$5 (x + 3)$

Answer(a) ..... [1]

(b) Factorise completely.

$12xy - 3x^2$

Answer(b) ..... [2]

(c) Solve.

$5x - 24 = 51$

Answer(c) $x =$ ..... [2]

3) Solve the equation.

$5(2y - 17) = 60$

Answer $y =$ ..... [3]

4) **(b)** Make v the subject of $E = \frac{1}{2}mv^2$.

Answer(b) $v =$ ..... [3]

5) Solve the equation $3x - 5 = 16$.

Answer $x =$ ..... [2]

6) Factorise completely.

$6xy^2 - 8y$

Answer ..... [2]

7) Factorise completely.

$12xy - 3x^2$

Answer ..... [2]

8) **(a)** Factorise $x^2 + x - 30$.

Answer(a) ..... [2]

9) Factorise completely.

$kp + 3k + mp + 3m$

Answer ..... [2]

10) Find the value of $2x + y$ for the simultaneous equations.

$$3x + 5y = 48$$
$$2x - y = 19$$

Answer $2x + y =$ ..... [4]

11) **(b)** Solve the simultaneous equations.

$$3x + 2y = 18$$
$$2x - y = 19$$

Answer(b) $x =$ .....

$y =$ ..... [3]

12) **(a)** Solve the equations.

(i) $4x - 7 = 8 - 2x$

Answer(a)(i) $x =$ ..... [2]

(ii) $\dfrac{x-7}{3} = 2$

Answer(a)(ii) $x =$ ..... [2]

13) Expand the brackets.

$$y(3 - y^3)$$

Answer ..... [2]

14) **(a)** Simplify the following expressions.

(i) $3m - 5m + 6m$

Answer(a)(i) ..... [1]

(ii) $5e - 4f - 3e - 6f$

Answer(a)(ii) ..... [2]

(b) $s = u + at$

(i) Calculate the value of s when $u = 27$, $a = -2$ and $t = 15$.

Answer(b)(i) $s =$ ..... [2]

(ii) Make t the subject of the formula $s = u + at$.

Answer(b)(ii) $t =$ ..... [2]

(c) Solve the simultaneous equations.

$$\begin{aligned} 5x + 2y &= 4 \\ 4x - y &= 11 \end{aligned}$$

Answer(c) $x =$ .....

$y =$ ..... [3]

15) **(a)** Solve the following equations.

(i) $6x - 2 = 2x + 8$

Answer(a)(i) $x =$ ..... [2]

(ii) $4(2y - 3) = 24$

Answer(a)(ii) $y =$ ..... [3]

(b) Solve the simultaneous equations.

$$5x + 9y = -21$$
$$12x - 2y = 44$$

Answer(b) $x =$ .....

$y =$ ..... [4]