1.

   Solve the system of linear equations.

   $$3x - 2y = 21$$
   $$5x + 2y = 51$$

   $x =$ ....

   $y =$ .... [2]

2.

   y varies as the square of $(x-7)$.
   When $x = 12$, $y = 2$.

   Find y when $x = 17$.

   $y =$ .... [3]

3.

(a) Expand and simplify.

$$(3x+1)(x-2)-(x+1)(2x-3)$$

.... [3]

(b) Write as a single fraction in its simplest form.

$$\frac{4}{2x-3} \div \frac{2x^2+14x}{2x^2+11x-21}$$

.... [4]

4.
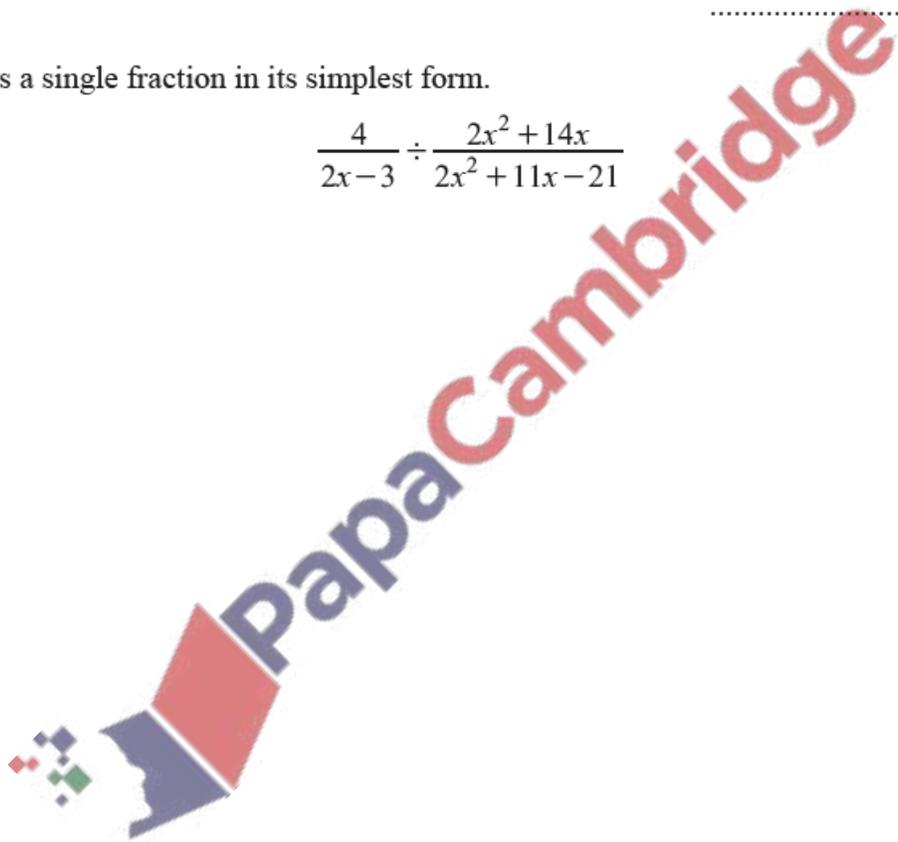
(a) Simplify fully.

(i) $p^3 \times p^{11}$

.... [1]

(ii) $\dfrac{18m^6}{3m^2}$

.... [2]

(iii) $\left(\dfrac{27x^9 y^{27}}{64}\right)^{-\frac{1}{3}}$

.... [3]

(b) A sequence has nth term $3n^2$.

Write down the first 3 terms of this sequence.

.... , ... , ... [2]
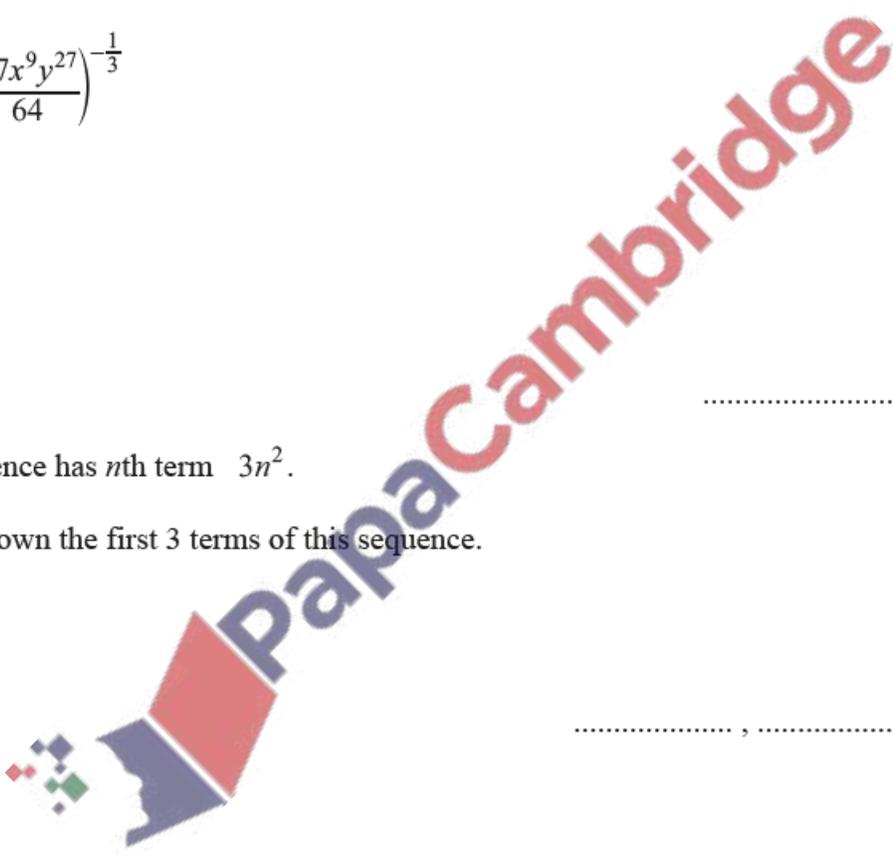
(c) Find the *n*th term for each of these sequences.

(i) 13, 16, 19, 22, 25, …

.... [2]

(ii) 3, 17, 55, 129, 251, …

.... [2]

4
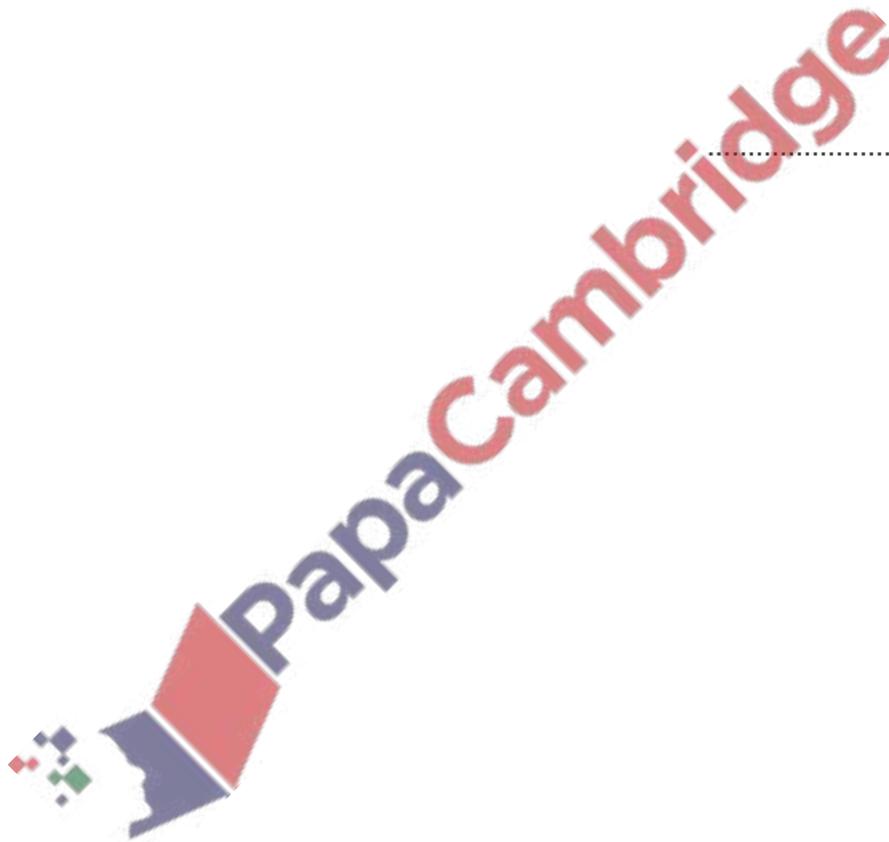
(d) Solve.

$$\frac{3x-22}{4} = 23$$

$x =$ .... [3]

(e) Use the quadratic formula to solve $3x^2 + 8x - 20 = 0$.
Show all your work and give your answers correct to 2 decimal places.

$x =$ .... , $x =$ .... [4]
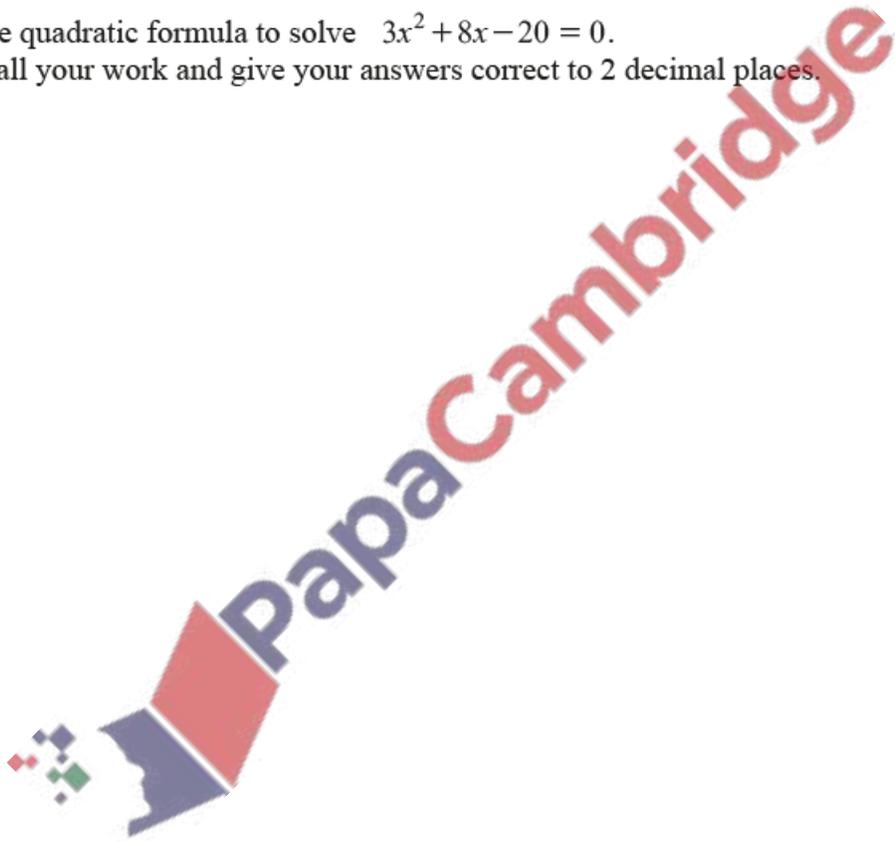
(a) $P = 5k^2 - 7$

    (i) Find the value of P when $k = 3$.

$P =$ .... [2]

    (ii) Solve for k.

$k =$ .... [3]

(b) (i) Solve.

$$x - 3 \leqslant 5x + 7$$

.... [2]

    (ii) Show your answer to **part (b)(i)** on the number line.

[1]