1) Expand and simplify

a) $6(2x+3) - 4(x-7)$

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

a) $6(2x+3) - 4(x-7)$

$= 12x + 18 - 4x + 28$

$= 8x + 46$

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

$= 2x^2 - x + 6x - 3$

$= 2x^2 + 5x - 3$

2) Factorise

a) $12hkj - 8h^2k$

b) $6p^2q + 3pq^2$

a) $12hkj - 8h^2k = 4hk(3j - 2h)$

b) $6p^2q + 3pq^2 = 3pq(2p + q)$

3) Solve

a) $2x - 7 = 11$

b) $5x - 14 = 26 - 3x$

c) $3(2x+5) = 2(x-7) + 45$

d) $\dfrac{2x+3}{5} = 3$

e) $\dfrac{x}{2} + 5 = 11$

a) $2x - 7 = 11$

$2x = 11 + 7$

$2x = 18$

$x = \dfrac{18}{2}$

$\underline{x = 9}$

b) $5x - 14 = 26 - 3x$

$5x + 3x = 26 + 14$

$8x = 40$

$x = \dfrac{40}{8}$

$\underline{x = 5}$

c) $3(2x+5) = 2(x-7) + 45$

$6x + 15 = 2x - 14 + 45$

$6x - 2x = -14 + 45 - 15$

$4x = 16$

$x = \dfrac{16}{4}$

$\underline{x = 4}$

d) $\dfrac{2x+3}{5} = 3$

$2x + 3 = 15$

$2x = 15 - 3$

$2x = 12$

$x = \dfrac{12}{2}$

$\underline{x = 6}$

e) $\dfrac{x}{2} + 5 = 11$

$x + 10 = 22$

$x = 22 - 10$

$\underline{x = 12}$

4) $s = ut + \frac{1}{2}at^2$

Find s when
$u = 5, \; t = 6, \; a = 8$

$s = 5 \times 6 + \frac{1}{2} \times 8 \times 6^2$

$s = 30 + 144$

$\underline{s = 174}$

5) $v^2 = u^2 + 2as$

Find v when
$u = 7, \; a = 6, \; s = 45$

$v^2 = 7^2 + 2 \times 6 \times 45$

$v^2 = 49 + 540$

$v^2 = 589$

$v = \sqrt{589}$

$v = 24.269$

$v = 24.3 \qquad$ to 3 s.f.