

## Quadratic Equations

1. Solve

(a)  $x^2 - 5x - 14 = 0$

(b)  $m^2 - 2m - 8 = 0$

(c)  $3a^2 - 4a - 7 = 0$

(d)  $5n^2 + 7n = 6$

(e)  $a^2 = 10a$

(f)  $8x = 2x^2$

(g)  $n^2 = 24 - 2n$

(h)  $y^2 + 12 = 7y$

(i)  $\frac{1}{2}x^2 + 2x - 16 = 0$

(j)  $\frac{1}{2}g^2 - 3g = 8$

(k)  $\frac{t^2 - 8t}{5} = 4$

(l)  $6 = \frac{h^2 - 4h}{2}$

(m)  $x^2 = 4(x + 3)$

(n)  $m(m - 6) = 40$

(o)  $(x + 3)(x - 3) = 8x$

(p)  $(a - 6)(a + 6) = 5a$

2.  $P = \frac{c^2 - 5c}{6}$ . Find c given  $P = 4$ .

3.  $A = \frac{k^2 + 12k}{4}$ . If  $A = 7$  find k given  $k > 0$

4. The number of diagonals, d, in a polygon with n sides is given by the formula

$$d = \frac{n(n-3)}{2}.$$

A polygon has 20 diagonals. How many sides does it have?

5. Terms of a sequence can be represented as  $u_1, u_2, u_3, u_4, \dots, u_n$ .  
The nth term of the sequence can be found by using the formula

$$u_n = \frac{n(n+1)}{2}.$$

For which term of the sequence is  $u_n = 21$ .