1) Solve

a) $(x + 1)(x + 2) = 0$

b) $(x + 3)(x - 1) = 0$

c) $x(4 - x) = 0$

d) $(2x + 1)(x - 3) = 0$

2) Solve and check

a) $x^2 + 7x + 12 = 0$

b) $x^2 - x - 6 = 0$

c) $x^2 - 8x + 16 = 0$

f) $x^2 - 7x = 18$

3) Solve

a) $2a^2 + 3a - 2 = 0$

b) $3s^2 - 4s + 1 = 0$

c) $2t^2 + 11t + 5 = 0$

d) $3x^2 + 7x - 6 = 0$

e) $3 = 4m^2 - 4m$

f) $10y^2 - 16y = -6$

g) $x^2 + 2x = 0$

h) $3x^2 + 2x = 0$

i) $5x^2 - 20x = 0$

j) $0 = 4x + 3x^2$

k) $x^2 - 25 = 0$
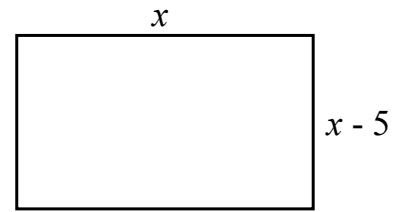
l) $x^2 + 4 = 16$

m) $x^2 - 2x - 11 = 4$

n) $5x^2 = 2x$

o) $(x + 4)^2 = 4$

p) $(x - 6)^2 - 8x = 0$

4) The area of the rectangle shown in the diagram is 36 cm². What are its dimensions?

x

$x - 5$

5) A photograph measuring 12 cm by 8 cm is to be surrounded by a mat before framing. The width of the mat is to be the same on all sides of the photograph. The area of the mat is to equal the area of the photograph. Find the width of the mat.

6) Three times the square of an integer is 432. Find the integer.

7) A regular polygon with n sides has $\frac{n(n-3)}{2}$ diagonals. Find the number of sides of a regular polygon that has 44 diagonals.