

METH U1 Chapter 6 WS 1Quadratic equations

1. Solve:

a) $(x-2)(x-6) = 0$ $x = 2$ or $x = 6$	b) $(2x-6)(x+6) = 0$ $x = 3$ or $x = -6$
c) $x^2 = 36$ $x = \pm 6$	d) $3x(2x+3) = 0$ $x = 0$ or $x = -\frac{3}{2}$
e) $x^2 - 4x - 3 = 0$ $x = -\sqrt{7} + 2$ or $x = \sqrt{7} + 2$	f) $-2x^2 - 4x + 3 = 0$ $x = \frac{\sqrt{10}}{2} - 1$ or $x = -\frac{\sqrt{10}}{2} - 1$
g) $x^2 - x - 72 = 0$ $x = -8$ or $x = 9$	h) $x^2 + 5x - 14 = 0$ $x = -7$ or $x = 2$
i) $2x^2 + 5x + 3 = 0$ $x = -1$ or $x = -\frac{3}{2}$	j) $\frac{1}{7}x^2 = \frac{3}{7}x$ $x = 0$ or $x = 3$
k) $x^2 + 8x = -15$ $x = -5$ or $x = -3$	l) $5x^2 = 11x - 2$ $x = 2$ or $x = \frac{1}{5}$

2. Without sketching the graph, determine whether the following quadratics cross or touch the x-axis.

a) $y = x^2 - 5x + 2$ Cross	b) $y = -4x^2 + 2x - 1$ Neither
c) $y = x^2 - 6x + 9$ Touch	d) $y = 8 - 3x - 2x^2$ Cross

3. Find the values of m for which each of the following equations

- Has no solutions
- Has one solution
- Has two distinct solutions

a) $x^2 - 4mx + 20 = 0$ a) $-\sqrt{5} < m < \sqrt{5}$ b) $m = \pm\sqrt{5}$ c) $m > \sqrt{5}$ or $m < -\sqrt{5}$	b) $mx^2 - 3mx + 3 = 0$ a) $-\frac{4}{3} < m < \frac{4}{3}$, $m \neq 0$ b) $m = \frac{4}{3}$ c) $m > \frac{4}{3}$ or $m < -\frac{4}{3}$
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4. Find the values of p for which the graph of $y = px^2 + 8x + p - 6$ crosses the x-axis.

$$-2 < p < 8$$