Given graph $y = x^2 - 3x - 4$

1) Solve
$x^2 - 2x - 8 = 0$

$$x^2 - 2x - 8 = 0$$
$$-x + 4 = -x + 4$$
$$x^2 - 3x - 4 = -x + 4$$

Draw $y = -x + 4$

where graphs intersect, the x-coords are the solutions to $x^2 - 2x - 8 = 0$

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2) Solve $x^2 - 6x + 5 = 0$

$$x^2 - 6x + 5 = 0$$
$$+3x - 9 = 3x - 9$$
$$x^2 - 3x - 4 = 3x - 9$$

Draw graph $y = 3x - 9$

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3) Solve $x^2 - 3x - 10 = 0$

$$x^2 - 3x - 10 = 0$$
$$+6 = +6$$
$$x^2 - 3x - 4 = 6$$

Draw graph $y = 6$

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4) Solve $x^2 - x - 2 = 0$

$$x^2 - x - 2 = 0$$
$$-2x - 2 = -2x - 2$$
$$x^2 - 3x - 4 = -2x - 2$$

Draw graph $y = -2x - 2$

5) $x^2 - 2x - 7 = 0$

Draw graph $y = -x + 3$

$$x^2 - 2x - 7 = 0$$
$$-x + 3 = -x + 3$$
$$x^2 - 3x - 4$$

Formulae to Memorise

	Sin	Cos	Tan
0°	0	1	0
30°	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}$
45°	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{2}}$	1
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{1}$
90°	1	0	∞

$$ax^2 + bx + c = 0 \qquad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Sine Rule $\quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule $\quad a^2 = b^2 + c^2 - 2bc\cos A$

Angle form of Cosine Rule $\quad \cos A = \frac{b^2 + c^2 - a^2}{2bc}$

Basic Trigonometry

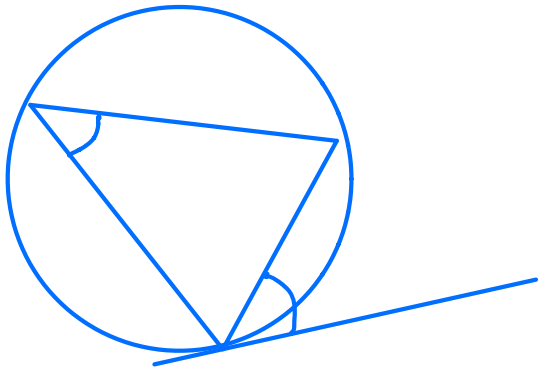
$\sin = \frac{O}{H} \qquad \cos = \frac{A}{H} \qquad \tan = \frac{O}{A}$

3 Properties of Circles and 5 Circle Theorems

1. Angle between Tangent / Radius = 90°
2. Tangents from a point are equal in length
3. Perpendicular bisector of any chord passes through centre

Circle Theorems

1. Alternate Segment Theorem



2. Opposite angles of cyclic quad add up to 180°
3. Angle at the centre is twice angle at circumference
4. Angles in the same segment are equal
5. Angle in a semi-circle = 90°