

Algebra lesson 11 quiz

1. Factorise and solve the following equations:

a) $x^2 + 5x + 6 = 0$

	x	2
x	x^2	$2x$
3	$3x$	6

check: $2x + 3x = 5x$

$$x^2 + 5x + 6 = (x+2)(x+3) = 0$$

either $x+2=0$ or $x+3=0$
 $x=-2$ or $x=-3$

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

	x	-1
x	x^2	$-x$
-5	$-5x$	5

check: $-1x + -5x = -6x$

$$x^2 - 6x + 5 = (x-1)(x-5) = 0$$

either $x-1=0$ or $x-5=0$
 $x=1$ or $x=5$

c) $3x^2 + 11x - 20 = 0$

	$3x-4$
x	$3x^2 - 4x$
5	$15x - 20$

check: $-4x + 15x = 11x$

$$3x^2 + 11x - 20 = (3x-4)(x+5) = 0$$

either $3x-4=0$ or $x+5=0$
 $3x=4$ or $x=-5$
 $x=\frac{4}{3}$

2. Use the quadratic formula to solve the above equations. See if you get the same answer.

Quadratic formula: if $0 = ax^2 + bx + c$ then $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

a) $a=1$ $b=5$ $c=6$

$$x = \frac{-5 \pm \sqrt{5^2 - 4 \times 1 \times 6}}{2}$$

$$= \frac{-5 \pm \sqrt{1}}{2}$$

$$= -\frac{4}{2} \text{ or } -\frac{6}{2}$$

$$= -2 \text{ or } -3$$

Use the same procedure on b) and c), you will get the same answer.