IB Math Studies 1 BELL WORK

Wayne has a collection of 2 cent and 5 cent stamps. He has three times as many 2 cent stamps as 5 cent stamps, and the total value of the stamps is 66 cents. How many 5 cent stamps does Wayne have?

IB Math Studies 1 BELL WORK

Solve each equation by factoring.

$x^2 - 11x + 19 = -5$

$+5 \quad +5$

$x^2 - 11x + 24$

$(x-8)(x-3)$

$x-8=0 \quad x-3=0$

$x=8 \quad x=3$

$6b^2 - 13b + 3 = -3$

$6b^2 - 9b - 4b + 6 = 0$

$3b(2b-3) - 2(2b-3)$

$(3b-2)(2b-3)$

$b = 2/3 \quad b = 3/2$

$6b^2 - 13b + 6 = 0$

$-4k^2 - 8k - 3 = -3 - 5k^2$

$+5k^2 \quad +3 \quad +3 \quad -5k^2$

$k^2 - 8k = 0$

$k(k-8) \quad k=0 \quad k=8$

Complete:

Exercises

4F # 7, 8
4G # 1, 4
4H.1 # 2a-b
4 H.2 # 2 a-c
4 I # 1, 2, 3, 4, 6

4I #2) X = small #

2X + 1 = big #

X + 2X + 1 = 82

X = 27

#4)

$13s + 14L = 9$

$4s + 12L = 6$

$s = \frac{6}{25} L = 0.24 L$

$L = \frac{21}{50} L = 0.42$

Chapter 4

Equations and formulae

Syllabus reference: 1.6

Contents:

J QUADRATIC EQUATIONS

A **quadratic equation** in x is an equation which can be written in the form $ax^2 + bx + c = 0$ where a, b, and c are constants and $a \neq 0$.

The solutions of the equation are the values of x which make the equation true. We call these the **roots** of the equation, and they are also the **zeros** of the quadratic expression $ax^2 + bx + c$.

Solve for x: **a** $3x^2 - 1 = 8$ **b** $5 - 2x^2 = 11$

$+1 \quad +1$

$\frac{3x^2}{3} = \frac{9}{3}$

$x^2 = 3$

$x = \pm 1.73$

$x = \pm\sqrt{3}$

$-5 \quad -5$

$\frac{-2x^2}{-2} = \frac{6}{-2}$

$x^2 = -3$

$x = \pm\sqrt{-3}$

$x = \pm i\sqrt{3}$

Solve for x:

a $\sqrt{(x+3)^2} = \sqrt{36}$

$x + 3 = \pm 6$

$-3 \quad -3$

$6 - 3 \qquad -6 - 3$

$x = 3 \qquad x = -9$

b $\sqrt{(x-4)^2} = \sqrt{7}$

$x - 4 = \pm\sqrt{7}$

$+4 \quad +4$

$x = 4 \pm \sqrt{7}$

THE NULL FACTOR LAW

The **Null Factor law** states:

> When the product of two (or more) numbers is zero then at least one of them must be zero.
> So, if $ab = 0$ then $a = 0$ or $b = 0$.

Solve for x using the Null Factor law:

a $3x(x-5) = 0$

$3x = 0$ $\quad x - 5 = 0$

$x = 0$ $\quad x = 5$

b $(x-4)(3x+7) = 0$

$x - 4 = 0$ $\quad 3x + 7 = 0$

$x = 4$ $\quad x = -7/3$

SOLUTION USING TECHNOLOGY

Use technology to solve:

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

b $x^2 + 9x + 14 = 0$

c $10x^2 + 63 = 53x$

$-53x \quad -53x$

$10x^2 - 53x + 63 = 0$

Assignment:

Exercises

4 K # 3, 6, 9, 12, 14