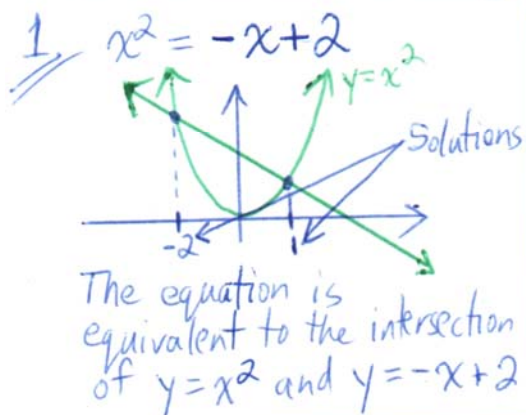
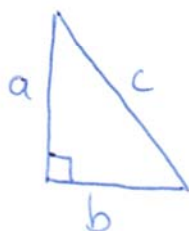


MCR3UO Culminating Activity - Answers

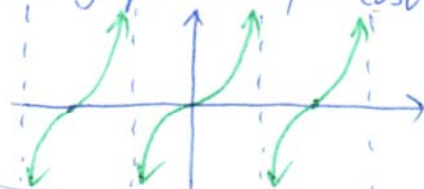


$$a^2 + b^2 = c^2$$



$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

The graph of $y = \tan \theta$ is exactly the same as the graph of $y = \frac{\sin \theta}{\cos \theta}$



2. $24x^3y^2 + 5x^2y^2 - 36xy^2$
 $= xy^2(24x^2 + 5x - 36)$
 $= xy^2(24x^2 + 32x - 27x - 36)$
 $= xy^2(8x(3x + 4) - 9(3x + 4))$
 $= xy^2(3x + 4)(8x - 9)$

$24(36) = 864$
 $32(-27) = -864$
 $32 + (-27) = 5$

$(2a - 3b)(5a - 7b)^2$ ← exponent first
 $= (2a - 3b)(25a^2 - 70ab + 49b^2)$
 $= 50a^3 - 140a^2b + 98ab^2 - 75a^2b + 210ab^2 - 147b^3$
 $= 50a^3 - 215a^2b + 308ab^2 - 147b^3$

$$\frac{2x}{4x^2 + 6x} - \frac{3}{2x + 3}$$

$$= \frac{2x}{2x(2x + 3)} - \frac{3}{2x + 3}$$

$$= \frac{1}{2x + 3} - \frac{3}{2x + 3}$$

$$= \frac{1 - 3}{2x + 3}$$

$$= \frac{-2}{2x + 3}$$

$$x^2 - 3x - 22 = 4(x - 1)$$

$$\therefore x^2 - 3x - 22 = 4x - 4$$

$$\therefore x^2 - 7x - 18 = 0$$

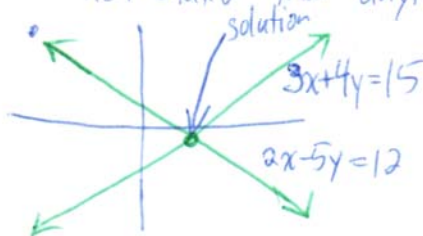
$$\therefore (x - 9)(x + 2) = 0$$

$$\therefore x - 9 = 0 \text{ or } x + 2 = 0$$

$$\therefore x = 9 \text{ or } x = -2$$

3. • $\sin \theta = \frac{1}{2}$ is correct
 • Solve $x^2 - 2x - 35 = 0$
 • $\cos \theta = \sqrt{3}$
 $\therefore$ there are no solutions since $-1 \leq \cos \theta \leq 1$ for all θ

• $a^2 + 4a - 5 = (a - 1)(a + 5)$
 The rest is wrong because it was not stated that anything = 0



• However, $5a^2 - 7b^2$ cannot be simplified