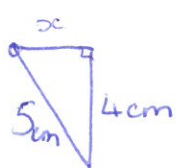


Relationships Extended Test 2

1. $\angle OCB = 59^\circ$
 $\angle COB = 180 - 59 - 59 = 62^\circ$
 $\angle AOC = 180 - 62 = 118^\circ$
 $\angle ACO = \frac{180 - 118}{2} = 31^\circ$

2. $3x + 2y = 12$
 $2y = -3x + 12$
 $y = -\frac{3}{2}x + 6$
 $m = -\frac{3}{2}$

$$y - b = m(x - a)$$
$$y - 5 = -\frac{3}{2}(x - 0)$$
$$\therefore y = -\frac{3}{2}x + 5$$

3.  $x^2 = 5^2 - 4^2$
 $= 9$
 $x = 3$

$$w = 3 \times 2 = 6 \text{ cm}$$

4. $20r + 20y = 240 \quad \times 5$
 $13r + 25y = 240 \quad \times 4$

$$100r + 100y = 1200$$

$$52r + 100y = 960$$

$$48r = 240$$

$$r = 5$$

$$20(5) + 20y = 240$$

$$20y = 140$$

$$y = 7$$

5. $P = 2a + b$

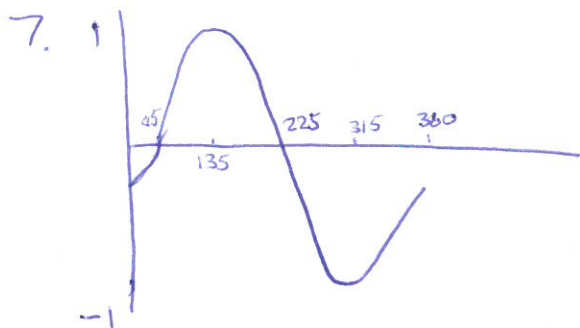
$$P - b = 2a$$

$$a = \frac{P - b}{2}$$

$$6. \cos^2 x + \sin^2 x = 1$$

$$\sin^2 x = 1 - \cos^2 x$$

$$\frac{4(1 - \cos^2 x)}{3 \sin x} = \frac{4 \sin^2 x}{3 \sin x} = \frac{4 \sin x}{3}$$



8 a) $a = 4$
 $b = 3$

b) $4 \sin 3x = 2$
 $\sin 3x = \frac{1}{2}$

$$3x = 30, 150$$

$$x = 10^\circ, 75^\circ$$

$$A(75^\circ, 2)$$

$$\begin{array}{c} 180^\circ \\ \checkmark \\ \frac{S}{T} \mid \frac{A}{C} \end{array}$$

9. $a = 2$
 $b = -4$
 $c = -1$

$$x = \frac{4 \pm \sqrt{24}}{2 \times 2}$$

$$x = \frac{4 + \sqrt{24}}{4}$$

$$= 2.224$$

$$= 2.2$$

$$x = \frac{4 - \sqrt{24}}{4}$$

$$= -0.2247$$

$$= -0.2$$

$$b^2 - 4ac$$

$$= (-4)^2 - 4 \times 2 \times (-1)$$

$$= 16 + 8$$

$$= 24$$

10 a) $B(3, 7)$

b) $x = 3$

c) $y = k(x+3)^2 + 4$

subs (0, 10)

$$10 = k(0+3)^2 + 4$$

$$10 = 9k + 4$$

$$9k = 6$$

$$k = \frac{6}{9} = \frac{2}{3}$$

$$y = \frac{2}{3}(x+3)^2 + 4$$