1. $A(0,8)$ $B(6,0)$

$\dfrac{y_A - y_B}{x_A - x_B}$ $C = 8$

$= \dfrac{8-0}{0-6}$ $y = mx + C$

$= \dfrac{8}{-6}$ $y = \dfrac{-4}{3}x + 8.$

$= \dfrac{-4}{3}$

2a) not in course

b) $Q_1 = 6$ $Q_2 = 7$ $Q_3 = 8$

c)


```
5   6   7   8   9   10   11
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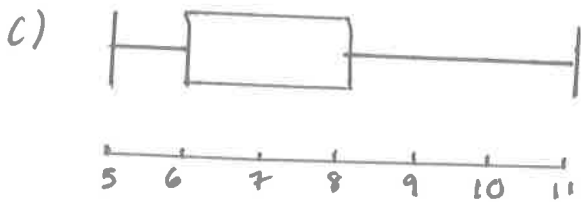
3. $V = \dfrac{4}{3}\pi r^3$

$= \dfrac{4}{3} \times 3.14 \times 3 \times 3 \times 3$

$= 4 \times 3.14 \times 9$

$= 113.04 \, cm^3$

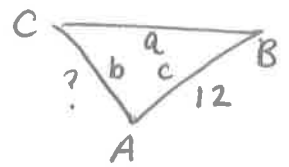$$\begin{array}{r} 3.14 \\ 9 \\ \hline 28.26 \\ \times \quad 4 \\ \hline 113.04 \end{array}$$

4a) $x^2 + x - 6$

$= (x+5)(x-1)$

b) $(3x+2)(x^2+5x-1)$

$= 3x^3 + 15x^2 - 3x + 2x^2 + 10x - 2$

$= 3x^3 + 17x^2 + 7x - 2$

5. $y = -x^2$ $(-3, k)$

$k = -(-3)^2$

$k = -9$

6.

$\dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

$\dfrac{b}{1/3} = \dfrac{12}{1/12}.$

$3b = 24$

$b = 8 \, cm.$

$b \div 1/3$

$b \times 3/1$

$= 3b$

$12 \div 1/12$

$12 \times 2/1$

$= 24$

7. $p^3(p^2 - p^{-3})$

$= p^5 - p^0$

$= p^5 - 1$

8. $b^2 - 4ac$ $a = 1$

$9 - 4(1)(5)$ $b = 3$

$9 - 20$ $c = 5$

$= -11$

$b^2 - 4ac < 0$ there are no real roots / solutions

9. Graph has slid left $45°$

$\therefore \quad y = \cos(x + 45)°$

10 a) $a = -5$ (moved right by 5)

b) $Q(8,0)$

c) $y = (x+a)^2 + b$

$y = (x \mp 5) + b$

at $(2,0)$

$0 = (2-5)^2 + b$

$0 = 3^2 + b$

$-9 = b$

$y = (x-5)^2 - 9.$

2010 Int 2 ~~2010~~ Paper 2.

1. 176500×0.9575^3

$= 154\,939.11$

$= 155\,000$ (3SF)

2. Pasta: $\dfrac{30}{72} \times 360 = 150°$

Potato: $\dfrac{40}{72} \times 360 = 200°$

Salad: $\dfrac{2}{72} \times 360 = 10°$

3. $P = 2 + 1.5(6)$

$= 2 + 9$

$= £11$

4. ai) $\bar{x} = \dfrac{49}{7} = 7.$

ii)

x	$x - \bar{x}$	$(x - \bar{x})^2$
13	6	36
7	0	0
0	-7	49
9	2	4
7	0	0
8	1	1
5	-2	4
		94

$S = \sqrt{\dfrac{\Sigma(x - \bar{x})^2}{n-1}}$

$= \sqrt{\dfrac{94}{6}}$

$= 3.96$

b) • The number of points scored is higher on average.

• The new coach has lower s.d and so more consistent results

5. $\begin{array}{ll} 2x - 5y = 24 & (\times 8) \\ 7x + 8y = 33 & (\times 5) \end{array}$

$\begin{array}{r} 16x - 40y = 192 \\ + \quad 35x + 40y = 165 \; + \\ \hline 51x = 357 \end{array}$

$\underline{\underline{x = 7}}$

$2x - 5y = 24$

$2(7) - 5y = 24$

$-5y = 24 - 14$

$-5y = 10$

$\underline{\underline{y = -2}}$

6. $\dfrac{S^2}{t} \times \dfrac{3t}{2S}$

$= \dfrac{3S^{\cancel{2}}\cancel{t}}{2\cancel{S}\cancel{t}}$

$= \dfrac{3S}{2}$

7. $P = 2(L + B)$

$\dfrac{P}{2} = L + B.$

$L = \dfrac{P}{2} - B.$

8. $\sqrt{63} + \sqrt{28} - \sqrt{7}$

$= \sqrt{9 \times 7} + \sqrt{4 \times 7} - \sqrt{7}$

$= 3\sqrt{7} + 2\sqrt{7} - \sqrt{7}$

$= 4\sqrt{7}$

9. $A_{sector} = \dfrac{65}{360} \times 14^2 \times \pi$

$= 111 \cdot 177 \cdots$

$= 111 \cdot 2 \, cm^2$

$A_{rectangle} = 40 \times 14$

$= 560 \, cm^2$

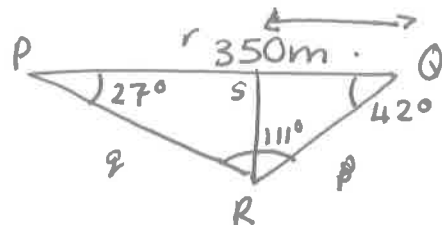$Area = 2(111 \cdot 2) + 2(560)$

$= 1342 \cdot 4 \, cm^2$

10a) $A = (x+7)(x+3)$

$= x^2 + 3x + 7x + 21$

$= x^2 + 10x + 21$

b) $\cancel{x}x^2 + 10x + 21 = 45$

$x^2 + 10x - 24 = 0$

$(x + 12)(x - 2) = 0$

$x = -12 \quad or \quad \boxed{x = 2}$

Cannot have
$x + 3$ as a length

11. $V_{cyl} = \pi r^2 h$

$3260 = \pi \times 6 \cdot 4^2 \times h$.

$h = \dfrac{3260}{\pi \times 6 \cdot 4^2}$

$= 25 \cdot 334 \cdots$

$= 25 \cdot 3 \, cm$

12. QR

$\dfrac{p}{\sin P} = \dfrac{r}{\sin R}$

$\dfrac{p}{\sin 27} = \dfrac{350}{\sin 111}$

$p = \dfrac{350 \sin 27}{\sin 111}$

$p = 170 \cdot 201 \cdots$

$p = 170 \cdot 2 \, m$

$\cos x = \dfrac{adj}{hyp}$
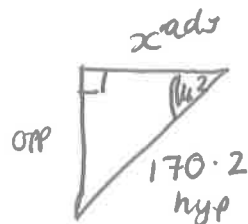
$\cos 42 = \dfrac{x}{170 \cdot 2}$

$x = 170 \cdot 2 \cos 42$

$= 126 \cdot 483 \cdots$

$QS = 126 \cdot 5 \, m$

13.
$x^2 = 1 \cdot 95^2 - 1 \cdot 25^2$

$= 2 \cdot 24$

$x = \sqrt{2 \cdot 24}$

$x = 1 \cdot 5$
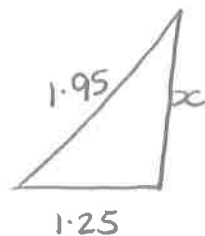
height $= 1 \cdot 5 + 1 \cdot 95$

$= 3 \cdot 45 \, m$

14. $h = 15 \tan x + 1 \cdot 7$

at $x = 25°$

a) $h = 15 \tan 25 + 1 \cdot 7$

$= 8 \cdot 7 \, m$

b) $18 \cdot 4 = 15 \tan x + 1 \cdot 7$

$\tan x = \dfrac{18 \cdot 4 - 1 \cdot 7}{15}$

$x = \tan^{-1}(1 \cdot 113) \quad x = 48 \cdot 1°$.