

Intermediate 2

Units 1, 2 and 3

Solutions 2007 - Paper 2

① $£28400 \times (1.023)^3 = £30405$ to the nearest pound

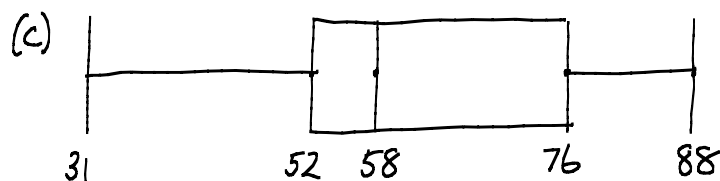
② Arc AB = $\frac{118}{360} \times \pi \times 21$
= 21.6cm 1 d.p.

③ (a) Boys - the lowest result is 47

(b) (i) median = 58%

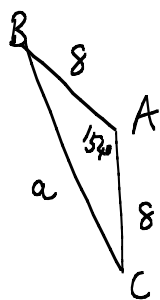
(ii) $Q_1 = 52\%$

(iii) $Q_3 = 76\%$



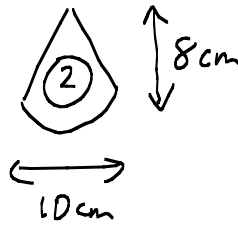
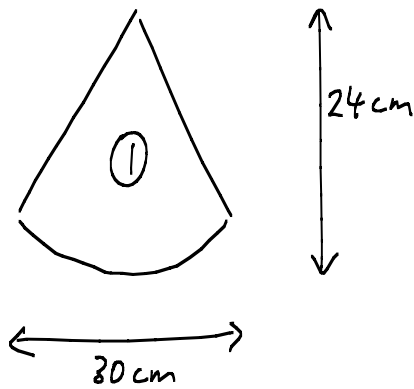
(d) Any appropriate comment comparing the two data sets
e.g. Make reference to the outlying GIRLS score of 31

④ (a) MOT = $180 - 26$
= 154°



(b) $a^2 = b^2 + c^2 - 2bc \cos A$
 $a^2 = 8^2 + 8^2 - 2(8)(8) \cos 154^\circ$
 $a^2 = 179.045 \dots$
 $a = 13.4 \text{ cm}$ 1 d.p.

5)



$$\begin{aligned} \text{Volume } ② &= \frac{1}{3} \pi r^2 h \\ &= \frac{1}{3} \pi (5^2)(8) \\ &= \underline{\underline{209.4395\dots}} \end{aligned}$$

$$\begin{aligned} \text{Volume } ① &= \frac{1}{3} \pi r^2 h \\ &= \frac{1}{3} \pi (15^2) 24 \\ &= \underline{\underline{5654.866\dots}} \end{aligned}$$

$$\begin{aligned} \Rightarrow \text{Volume of water} &= ① - ② \\ &= \underline{\underline{5400 \text{ cm}^3 \text{ to 2sf}}} \end{aligned}$$

6) D

$$\begin{aligned} ⑦ \text{ (a)} \quad 2x^2 - 18 \\ &= 2(x^2 - 9) \\ &= \underline{\underline{2(x-3)(x+3)}} \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad \frac{(2x+5)^2}{(2x-1)(2x+5)} &= \underline{\underline{\frac{2x+5}{2x-1}}} \end{aligned}$$

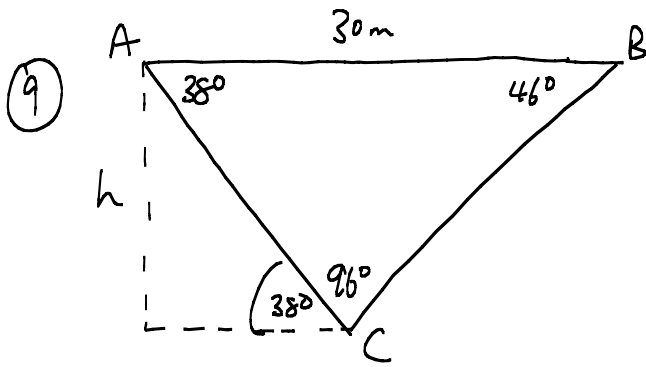
8) $2x^2 - 6x - 5 = 0$ Quadratic formula

$$\begin{aligned} a &= 2 \\ b &= -6 \\ c &= -5 \end{aligned}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{6 \pm \sqrt{36 - (4 \times 2 \times (-5))}}{4}$$

$$x = \frac{6 \pm \sqrt{76}}{4} \Rightarrow \underline{\underline{x = 3.7}} \quad \underline{\underline{x = -0.7}} \text{ (d.p.)}$$

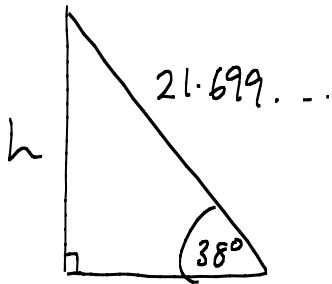


$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{30}{\sin 96^\circ} = \frac{AC}{\sin 46^\circ}$$

$$AC = \frac{30 \sin 46^\circ}{\sin 96^\circ}$$

$$\underline{\underline{AC = 21.699 \dots}}$$



Soll - CAT - TDA

$$\sin 38^\circ = \frac{h}{AC}$$

$$h = AC \times \sin 38^\circ$$

$$\underline{\underline{h = 13.4m \text{ l.d.p}}}$$

10

$$\begin{aligned} & \frac{5p^2}{8} \div \frac{p}{2} \\ &= \frac{5p^2}{8} \times \frac{2}{p} \\ &= \frac{10p^2}{8p} \\ &= \underline{\underline{\frac{5p}{4}}} \end{aligned}$$

11

$$\begin{aligned} K &= \frac{m^2 n}{p} \\ Kp &= m^2 n \\ \frac{Kp}{n} &= m^2 \\ m^2 &= \frac{Kp}{n} \\ \underline{\underline{m}} &= \underline{\underline{\sqrt{\frac{Kp}{n}}}} \end{aligned}$$

12

$$\begin{aligned} m^5 \times m^{-8} &= m^{-3} \\ &= \underline{\underline{\frac{1}{m^3}}} \end{aligned}$$

$$(13) \quad 5 \tan x^\circ - 6 = 2$$

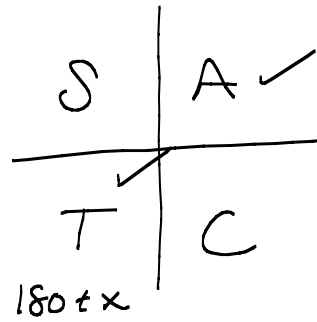
$$5 \tan x^\circ = 8$$

$$\tan x^\circ = \frac{8}{5}$$

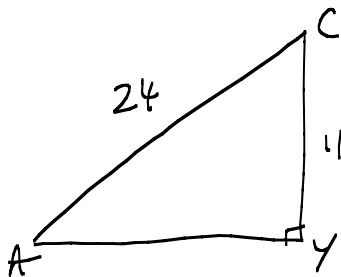
$$x^\circ = \tan^{-1}\left(\frac{8}{5}\right)$$

$$x^\circ = 57.99^\circ, 180 + 57.99^\circ$$

$$\underline{\underline{x^\circ = 58^\circ, 238^\circ \text{ to nearest degree}}}$$



(14)



$$AY^2 = 24^2 - 11^2$$

$$AY^2 = 455$$

$$AY = \sqrt{455}$$

$$AY = 21.33 \dots$$

$$\begin{aligned} \Rightarrow AB &= 2 \times AY \\ &= \underline{\underline{42.7 \text{ cm} \text{ 1 d.p}}} \end{aligned}$$