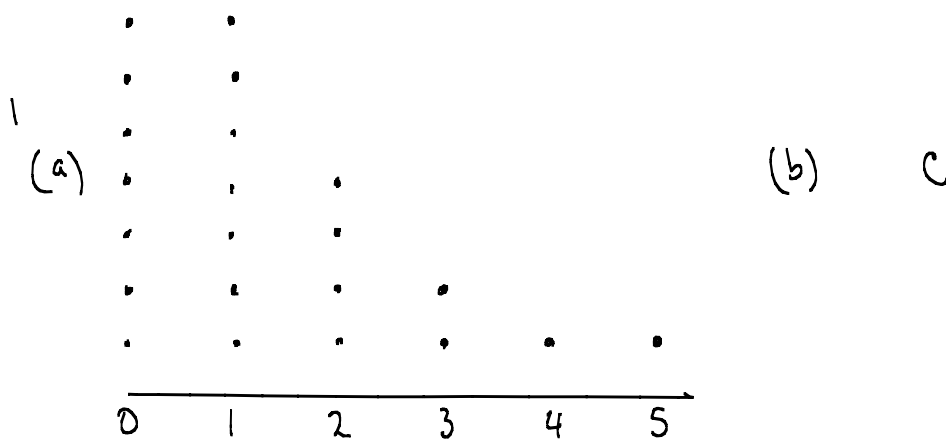


Int 2 Paper 1. (Applications)



2. $y = 3x - 1$

3. $x^2 - 5x - 24$
 $= \underline{(x - 8)(x + 3)}$

4. $(x+5)(2x^2 - 3x - 1)$
 $= x(2x^2 - 3x - 1) + 5(2x^2 - 3x - 1)$
 $= 2x^3 - 3x^2 - x + 10x^2 - 15x - 5$
 $= \underline{2x^3 + 7x^2 - 16x - 5}$

5. (a) 37 41 43 47 56 58 59 61 66 68 70 75

(i) Median = 58.5

(ii) IQR = $\frac{1}{2}(75 - 37) = \frac{1}{2}(38) = 19.$

(b) The median is higher suggesting the pupils scored better marks.
 The IQR is less suggesting there is less variation in the marks.

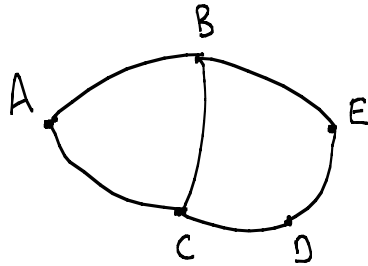
6. Any angle in 4th quadrant

7. $x + y = 5$

$$y = -x + 5$$

$$\underline{m = -1}$$

8.



9. (a) = sum (E6 : E9)

(b) = 06 * B2

10. $S = 10ab + 4b^2$

(a) $S = 10 \cdot 12 \cdot 5 + 4 \cdot 5^2$
 $= 600 + 100$
 $= \underline{700}$

(b) $424 = 10a \cdot 4 + 4 \cdot 4^2$
 $424 = 40a + 64$
 $40a = 360$
 $\underline{a = 9}$

Int 2 Paper 2 Applk '09.

1. 2007 Sales = $3000 \times 1.11 = 3330$

2008 Sales = $3330 \times 0.90 = 2997$.

yes sales in 2008 less than 2006 - dropped from 3000 to 2997

- just 3 less!

2.

X	$X - \bar{X}$	$(X - \bar{X})^2$
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166	-6	36
-----	----	----

168	-4	16
-----	----	----

170	-2	4
-----	----	---

171	-1	1
-----	----	---

173	1	1
-----	---	---

176	4	16
-----	---	----

180	8	64
-----	---	----

<hr/> 1204	<hr/> 0	<hr/> 138
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(b) $sd = \sqrt{\frac{138}{6}}$
 $= 4.7958$

sd = 4.8

(a) $\bar{X} = 1204 \div 7 = 172$

3. $Vol = (\pi r^2 - \pi r^2) \cdot V$

$$= (\pi \cdot 41^2 - \pi \cdot 37^2) \cdot 900$$

$$= 882159 \text{ mm}^3$$

$$= \underline{882000 \text{ mm}^3}$$

$$4. \quad 14x + 60y = 34430 \quad \times 2 \quad \text{--- (1)}$$

$$21x + 40y = 36895 \quad \times 3 \quad \text{--- (2)}$$

$$28x + 120y = 68860 \quad \text{--- (3)}$$

$$63x + 120y = 200685 \quad \text{--- (4)}$$

$$\text{(4) - (3)} \quad 35x = 41825$$

$$x = 1195$$

$$\text{Put } x = 1195 \text{ in (1)} \quad 14(1195) + 60y = 34430$$

$$16730 + 60y = 34430$$

$$60y = 17700$$

$$y = 295$$

Car cost £11.95

Passenger costs £2.95

$$9. \quad \text{Area of collar} = \frac{160}{360} \times \pi \cdot 18^2 - \frac{160}{360} \pi \cdot 16^2$$

$$= \frac{160}{360} \left(\pi \cdot 18^2 - \pi \cdot 16^2 \right)$$

$$= \underline{\underline{94.24 \text{ ins}^2}}$$

$$\begin{aligned}
 b_1 \quad \cos \phi &= \frac{b^2 + m^2 - p^2}{2bm} \\
 &= \frac{950^2 + 1000^2 - 1100^2}{2 \cdot 950 \cdot 1000} \\
 &= 0.564470 \\
 \hat{\phi} &= \underline{68.6^\circ}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad \text{Loan cost} &= (413.57 \times 48) - 15000 \\
 &= 19851.40 - 15000 \\
 &= \underline{\underline{\pounds 4851.36}}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad \text{Extra} &= 40 \times 0.8 = \pounds 32 \\
 \text{Salary} &= \pounds 218 + 32 = \pounds 250 \\
 \text{Savings} &= \frac{2}{5} \times 250 = \underline{\underline{\pounds 100}}
 \end{aligned}$$

$$9. \quad \text{Taxable Income} = \pounds 42000 - 5425 = \pounds 36575$$

$$\begin{array}{rcl}
 \text{Tax} = & 20\% \text{ on } 34600 & = 6920 \\
 & 40\% \text{ on } 1475 & = 790 \\
 & \text{Total} & = \underline{\underline{7710}}
 \end{array}$$

$$\text{Monthly tax} = 7710 \div 12 = \underline{\underline{\pounds 642.50}}$$

10.

$$\frac{DB}{\sin 38} = \frac{5}{\sin 17}$$

$$DB = \frac{5 \times \sin 38}{\sin 17}$$

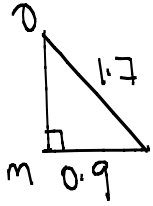
$$= \underline{10.9}$$

$$\sin 55 = \frac{AD}{10.5}$$

$$AD = 10.5 \times \sin 55$$

$$AD = \underline{8.6m}$$

11.



$$0m^2 = 1.7^2 - 0.9^2$$

$$= 2.08$$

$$0m = 1.44$$

$$\text{Height} = 1.44 + 1.7 = \underline{3.14m}$$

12.

mid pt	f	mid pt * f
25.5	42	1071
75.5	64	4832
125.5	35	4392.5
175.5	18	3159
225.5	12	2706
275.5	10	2755
	<u>181</u>	<u>18915.5</u>

$$\text{Mean} = \frac{18915.5}{181}$$

$$= 104.506$$

$$= \underline{\underline{£1.05}}$$