

KS3 Practice Paper

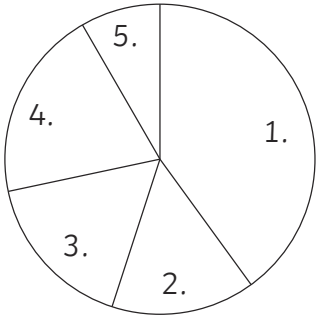
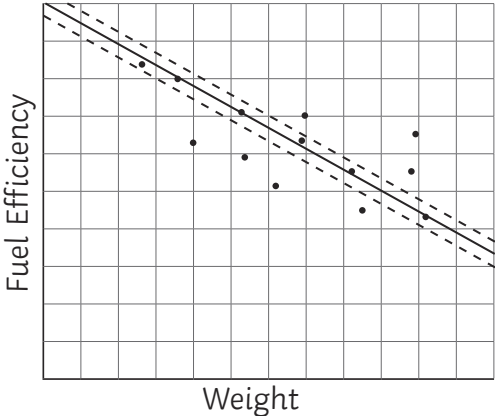
Mathematics Higher Calculator **Answers**

1.		2 marks total
	Evidence of squaring 32 or multiplying 15 by 2 7680	1 mark or 2 marks
2.		4 marks total
a.	$5a(a - 8)$	2 marks or 1 mark for correct partial factorisation.
b.	$4x^2 - 12x$	1 mark for each correct item.
3.		2 marks total
a.	2, 5, 13	1 mark
b.	Any example showing 2 square numbers which do not sum to another square number, for example $49 + 9 = 56$.	1 mark
4.		5 marks total
a.	$100 + 12$ or 112 or 1.12 or $12\% = 45.6$ 425.6	1 mark or 2 marks
b.	120% or 1.2 $24 \div 1.2$ or $24 \div \frac{120}{100}$ or £20 £4	1 mark or 2 marks or 3 marks
5.		3 marks total
	Angle BCA = angle BAC as the triangle is isosceles.	1 mark
	AC is a shared side.	1 mark
	Therefore, they are congruent (SAS).	1 mark
6.		5 marks total
	11×4 or 44m^2 $0.25 \times 4^2 \times \pi$ or 12.56637061m^2 $44 + 12.56637061$ or 56.56637061m^2 $56.56637061\text{m}^2 \div 15$ or 3.771091374 4 bags	1 mark or 2 marks or 3 marks or 4 marks 1 mark



7.		3 marks total																														
	<table border="1"> <thead> <tr> <th>Size</th> <th>Frequency</th> <th>Size × Frequency</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>8</td> <td>32</td> </tr> <tr> <td>5</td> <td>10</td> <td>50</td> </tr> <tr> <td>6</td> <td>11</td> <td>66</td> </tr> <tr> <td>7</td> <td>13</td> <td>91</td> </tr> <tr> <td>8</td> <td>18</td> <td>144</td> </tr> <tr> <td>9</td> <td>12</td> <td>108</td> </tr> <tr> <td>10</td> <td>5</td> <td>50</td> </tr> <tr> <td>11</td> <td>2</td> <td>22</td> </tr> <tr> <td>Total</td> <td>79</td> <td>563</td> </tr> </tbody> </table> <p>563 ÷ 79 or 7.12658... 7.1</p>	Size	Frequency	Size × Frequency	4	8	32	5	10	50	6	11	66	7	13	91	8	18	144	9	12	108	10	5	50	11	2	22	Total	79	563	1 mark or 2 marks or 3 marks
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Total	79	563																														
8.		6 marks total																														
a.	$(5a^2) + (12a^2)$ or $169a^2$ $\sqrt{169a^2} = 39$ $a = 3\text{cm}$	1 mark or 2 marks or 3 marks																														
b.	$10^2 - 4^2$ or 84 $\sqrt{84}$ or 9.16515139 9.17cm	1 mark or 2 marks or 3 marks																														
9.		3 marks total																														
	<p>Number of days</p> <p>Number sold</p>	1 mark																														
b.	27 days	1 mark																														
c.	The final bar covers a much larger range than the other three.	1 mark																														



10.		5 marks total										
a.	$360 \div 36$ or 10 $140 \div 10 = 14$ people	1 mark or 2 marks										
b.	 <table style="margin-left: 20px;"> <tr> <td>1. Football</td> <td>144°</td> </tr> <tr> <td>2. Cricket</td> <td>54°</td> </tr> <tr> <td>3. Basketball</td> <td>60°</td> </tr> <tr> <td>4. Netball</td> <td>72°</td> </tr> <tr> <td>5. Other</td> <td>30°</td> </tr> </table>	1. Football	144°	2. Cricket	54°	3. Basketball	60°	4. Netball	72°	5. Other	30°	3 marks for all angles drawn correctly $\pm 3^\circ$. 2 marks for 3 angles drawn correctly $\pm 3^\circ$. 1 mark for correct angles seen written.
1. Football	144°											
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11.		2 marks total										
a.		1 mark for line of best fit within boundaries shown.										
b.	As the weight of the car increases the miles per gallon decreases. or as the weight of the car increases the efficiency of the car decreases.	1 mark										
12.		2 marks total										
a.	A: $10x + 30$ B: $12x + 30$ C: $10x + 30$ D: $10x + 20$ A and C	1 mark for at least 2 correct algebraic expressions using any unknown. 1 mark										
13.		3 marks total										
	$\text{Energy} \propto \text{Speed}^2$ or $E = ks^2$ $9000 = k \times 12^2$ or 62.5 25 000 joules	1 mark or 2 marks or 3 marks										



14.		6 marks total
a.	$\sin(40^\circ)$ seen or implied $\sin(40^\circ) = \frac{7.8}{5}$ or $x = 5 \div \sin(40^\circ)$ 7.8cm	1 mark or 2 marks or 3 marks
b.	\sin^{-1} seen or implied $\sin^{-1}(\frac{8}{10})$ or $\sin(y) = 8 \div 10$ 53.1° $\frac{5}{x}$	1 mark or 2 marks or 3 marks
15.		6 marks total
a.		3 marks or 2 marks for enlarged shape with scale factor of $\frac{1}{2}$. or 1 mark for correct centre of enlargement with incorrect enlargement.
b.	Rotation 180 degrees Around point (4, 5)	1 mark 1 mark 1 mark
16.		3 marks total
a.	$\frac{9}{16}$	1 mark
b.	81 or a^8 seen $81a^8$	1 mark or 2 marks

	60 marks
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