

# FOCUS 6 TASKS - Set 1

Each of the 36 topics is covered once within the 6 sheets

## Sheet 1A

Direct proportion	Q1
Reverse percentages	Q2
Simplifying surds	Q3
Finding the equation of a straight line	Q4
Angles in polygons	Q5
Relative frequency/Expectation	Q6

## Sheet 1B

Error Intervals	Q1
Parallel and perpendicular gradients	Q2
Simplifying algebraic fractions	Q3
Calculations in terms of pi	Q4
Circle Theorems	Q5
Estimating the mean - grouped data	Q6

## Sheet 1C

Compound Measures	Q1
Rearranging formulae	Q2
Bearings (inc Trig)	Q3
Pythagoras/Trigonometry (3D)	Q4
Volume and Surface area	Q5
Box and whisker plots	Q6

## Sheet 1D

LCM and HCF (Prime Factors)	Q1
nth term of a quadratic sequence	Q2
Representing inequalities	Q3
Cumulative frequency	Q4
Product rule	Q5
Capture / Recapture	Q6

## Sheet 1E

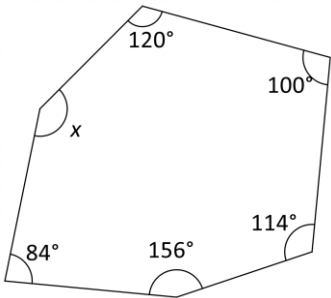
Compound interest and depreciation	Q1
Recurring Decimals to fractions	Q2
Forming and solving simultaneous	Q3
Sketching graphs	Q4
Mixed transformations	Q5
Probability Trees	Q6

## Sheet 1F

Factorising	Q1
Product of 3 binomials	Q2
Solving a quadratic equation by factorising	Q3
Using iterative formulae	Q4
Enlargement - negative scale factors	Q5
Scale Factors (Area and Volume)	Q6

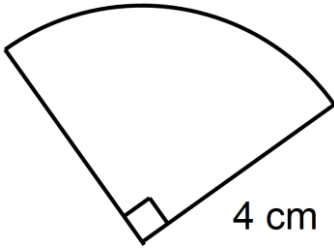
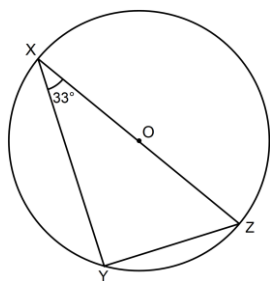
## SKILLS CHECK

Work out $1\frac{2}{3} + 2\frac{1}{8}$	Solve $4x - 5 = 9 - 3x$	Work out $15 \div 0.03$	Increase £44 by 15%
A prize is divided in the ratio 5 : 3. if the difference between the shares is £42 what is the total prize?	Simplify $\sqrt{84}$	$f(x) = 2x^2 - x$ Find $f(3)$	Evaluate $9\frac{3}{2}$

<b>QUESTION 1</b>	<b>QUESTION 2</b>	<b>QUESTION 3</b>												
$y$ is directly proportional to $x$ . When $y = 54$ $x = 3$ Find the value of $y$ when $x = 5$	A car is on sale at £11250. This is 10% reduction on the normal price. What was the price of the car before the reduction?	Simplify $\sqrt{12} \times \sqrt{21}$												
<b>QUESTION 4</b>	<b>QUESTION 5</b>	<b>QUESTION 6</b>												
Find the equation of the line passing through the points (1,5) and (3,9)	Calculate the size of angle $x$ 	Complete the table <table border="1" data-bbox="1083 1588 1374 2060"> <tr> <td>Relative frequency of winning</td> <td></td> <td>0.36</td> </tr> <tr> <td>Number of wins</td> <td>6</td> <td></td> </tr> <tr> <td>Number of games</td> <td>20</td> <td>50</td> </tr> <tr> <td></td> <td>Team A</td> <td>Team B</td> </tr> </table>	Relative frequency of winning		0.36	Number of wins	6		Number of games	20	50		Team A	Team B
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## SKILLS CHECK

Work out $1\frac{1}{4} \times 2\frac{1}{2}$	Solve $2(x - 2) = -9$	Work out $5.2 \div 0.04$	Decrease £155 by 20%
A prize is divided in the ratio 5 : 3. if the smaller share is £42 what is the total prize?	Simplify $\sqrt{90}$	$f(x) = x^3 - 3x$ Find $f(-2)$	Evaluate $16^{-\frac{3}{2}}$

<b>QUESTION 1</b> A number $y$ is 560 when rounded to 2 significant figures. Write, as an inequality, the error interval of $y$	<b>QUESTION 2</b> Find the equation of the line parallel to the line $y = 3x - 5$ , passing through point (2,11)	<b>QUESTION 3</b> Simplify $\frac{x}{4} + \frac{x}{9}$																								
<b>QUESTION 4</b> Calculate the area leaving your answer in terms of $\pi$ 	<b>QUESTION 5</b> O is the centre of the circle and X,Y and Z are points on the circumference . Work out the size of angle XZY 	<b>QUESTION 6</b> Calculate an estimate of the mean height <table border="1" data-bbox="1053 1624 1508 1982"> <thead> <tr> <th>Height (cm)</th> <th>f</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td><math>0 \leq h &lt; 5</math></td> <td>11</td> <td></td> <td></td> </tr> <tr> <td><math>5 \leq h &lt; 10</math></td> <td>15</td> <td></td> <td></td> </tr> <tr> <td><math>10 \leq h &lt; 15</math></td> <td>8</td> <td></td> <td></td> </tr> <tr> <td><math>15 \leq h &lt; 20</math></td> <td>4</td> <td></td> <td></td> </tr> <tr> <td><math>20 \leq h &lt; 25</math></td> <td>2</td> <td></td> <td></td> </tr> </tbody> </table>	Height (cm)	f			$0 \leq h < 5$	11			$5 \leq h < 10$	15			$10 \leq h < 15$	8			$15 \leq h < 20$	4			$20 \leq h < 25$	2		
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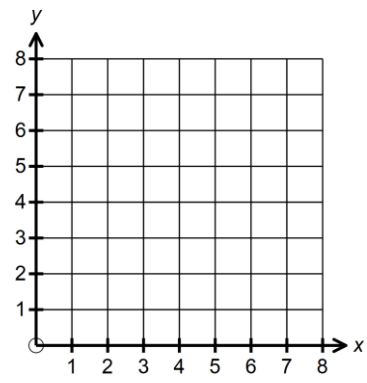
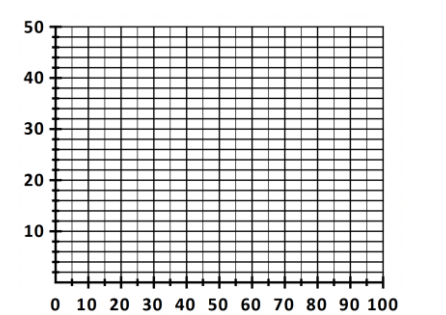
## SKILLS CHECK

Work out $1\frac{1}{4} \div 1\frac{2}{3}$	Solve $\frac{2x-1}{3} = 9$	Work out $0.5 \div 0.025$	Calculate 2.5% of £44
A prize is divided in the ratio 2 : 9. If the smaller share is £42 what is the larger share?	Simplify $\sqrt{120}$	$g(x) = 20 - x^3$ Find $g(-3)$	Evaluate $125^{-\frac{2}{3}}$

<p><b>QUESTION 1</b></p> <p>The mass of 4 m<sup>3</sup> of copper is 35840 kg. Calculate the density of copper as g/cm<sup>3</sup></p>	<p><b>QUESTION 2</b></p> <p>Make <math>x</math> the subject of the formula</p> $y = \frac{x}{a} + b$	<p><b>QUESTION 3</b></p> <p>Calculate the bearing of P from Q</p>										
<p><b>QUESTION 4</b></p> <p>A and B are mathematically similar. The area of A is 15 cm<sup>2</sup>. Calculate the area of B</p>	<p><b>QUESTION 5</b></p> <p>Calculate the volume Correct to 2 decimal places</p>	<p><b>QUESTION 6</b></p> <p>Represent the information about heights of plants given in the table as a box and whisker plot</p> <table border="1"> <thead> <tr> <th>Range</th> <th>IQR</th> <th>Median</th> <th>Min</th> <th>LQ</th> </tr> </thead> <tbody> <tr> <td>66</td> <td>28</td> <td>44</td> <td>10</td> <td>24</td> </tr> </tbody> </table>	Range	IQR	Median	Min	LQ	66	28	44	10	24
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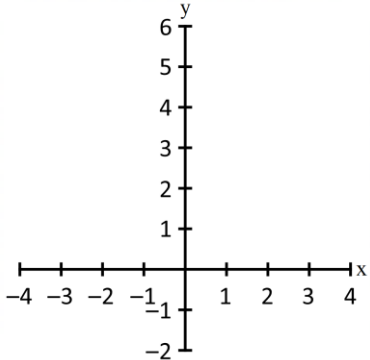
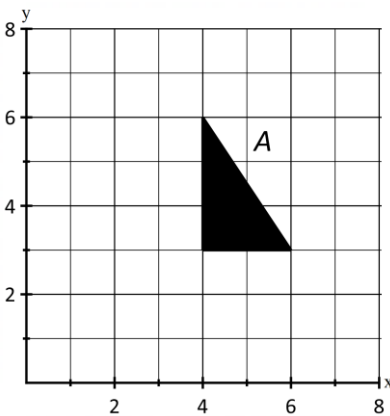
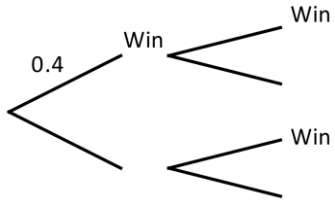
## SKILLS CHECK

Work out $2\frac{1}{4} - 1\frac{4}{5}$	Solve $\frac{2x}{3} - 1 = -9$	Work out $8 \div 0.04$	Increase £328 by 5%
A prize is divided in the ratio 3 : 7. If the larger share is £91 what is the smaller share?	Simplify $\sqrt{240}$	$g(x) = x^2 - 5x^3$ Find $g(-2)$	Evaluate $64^{\frac{4}{3}}$

<h3>QUESTION 1</h3> <p>Express 126 and 40 as products of prime factors and use this to find the lowest common multiple</p>	<h3>QUESTION 2</h3> <p>Find the nth term of the sequence 5, 8, 13, 20, 29</p>	<h3>QUESTION 3</h3> <p>On the grid clearly indicate the region R that satisfies the inequality <math>x + y &lt; 6</math></p> 												
<h3>QUESTION 4</h3> <p>Plot a cumulative frequency curve</p> <table border="1" data-bbox="95 1568 542 1724"> <thead> <tr> <th>Time (s)</th> <th><math>0 \leq t &lt; 20</math></th> <th><math>20 \leq t &lt; 40</math></th> <th><math>40 \leq t &lt; 60</math></th> <th><math>60 \leq t &lt; 80</math></th> <th><math>80 \leq t &lt; 100</math></th> </tr> </thead> <tbody> <tr> <td>freq</td> <td>5</td> <td>10</td> <td>14</td> <td>17</td> <td>4</td> </tr> </tbody> </table> 	Time (s)	$0 \leq t < 20$	$20 \leq t < 40$	$40 \leq t < 60$	$60 \leq t < 80$	$80 \leq t < 100$	freq	5	10	14	17	4	<h3>QUESTION 5</h3> <p>There are 23 female and 18 male members of a club. One female and one male will be selected to make a presentation. How many different pairs could be selected?</p>	<h3>QUESTION 6</h3> <p>Tess wants to estimate the number of fish in a pond. She catches and marks 50 fish. Tess returns the fish to the lake. She then catches 200 fish and finds that 10 of them are marked. Use this information to estimate the total number of fish in the lake.</p>
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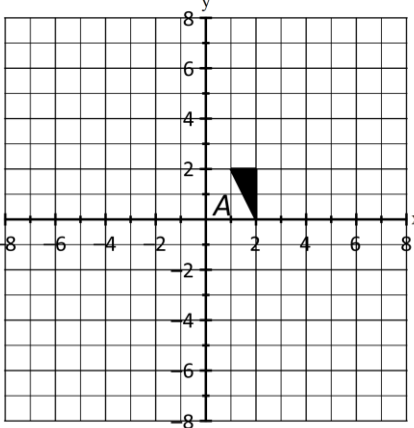
## SKILLS CHECK

Work out $1\frac{1}{4} \times \frac{4}{5}$	Solve $\frac{5x}{3} - 1 = 4$	Work out $18 \div 0.4$	Calculate 2.5% of £460
Divide £286 in the ratio 2 : 4 : 5	Simplify $\sqrt{96}$	$f(x) = 3x^2 - x^3$ Find $g(-3)$	Evaluate $8^{-\frac{4}{3}}$

<p><b>QUESTION 1</b></p> <p>A car was bought for £22000. It's value depreciates by 15% each year. What was the value of the car at the end of 3 years?</p>	<p><b>QUESTION 2</b></p> <p>Express <math>0.\dot{1}\dot{2}</math> as a fraction in its lowest form</p>	<p><b>QUESTION 3</b></p> <p>Sketch the graph of <math>y = 4 - x^2</math></p> 
<p><b>QUESTION 4</b></p> <p>The entry fee for 2 adults and 1 child to a theme park is £22. The entry fee for 1 adult and 3 children is £21. Form and solve two simultaneous equations to work out the entry fee for 4 adults and 4 children.</p>	<p><b>QUESTION 5</b></p> <p>Reflect shape A in the line <math>x = 3</math>. Label your shape B</p> 	<p><b>QUESTION 6</b></p> <p>The probability of Jake winning a game of chess is 0.4. Complete the tree diagram and use this to calculate the probability that he wins exactly one of the next 2 games</p> 

## SKILLS CHECK

Work out $3\frac{1}{2} \div 1\frac{3}{4}$	Solve $4x + 9 = 1 - 4x$	Work out $1 \div 0.025$	After a 10% increase Sal earns £9.35 per hour, What was her pay before the increase?
A prize is divided in the ratio 3:8 .If the difference between the shares is £235 what is the total prize?	Simplify $\sqrt{264}$	$f(x) = \frac{3x}{4} - \frac{16}{x}$ Find $f(8)$	Evaluate $(\frac{1}{27})^{-\frac{2}{3}}$

<b>QUESTION 1</b> Factorise $x^2 - 2x - 15$	<b>QUESTION 2</b> Expand and simplify $(x + 1)(x + 1)(x + 1)$	<b>QUESTION 3</b> Factorise and solve $x^2 - x - 12 = 0$
<b>QUESTION 4</b> Using $x_{n+1} = 5 - \frac{2}{x_n}$ with $x_0 = 1$ find the values of $x_1, x_2$ and $x_3$ (giving $x_3$ correct to 3 d.p.)	<b>QUESTION 5</b> Enlarge triangle A about centre (0,0) scale factor -2 . Label your triangle B 	<b>QUESTION 6</b> Calculate the length BH Answer correct to 1 d.p. 