

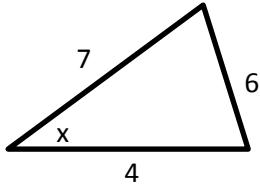
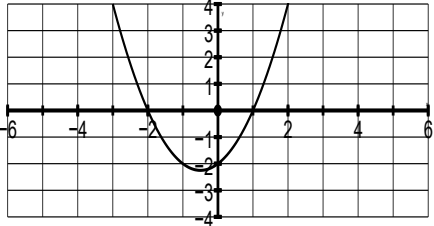
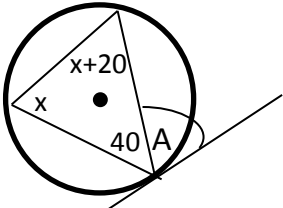
Grade A Core Skill Sheet 1

Evaluate: $128^{\frac{3}{7}}$		<p>You are given the graph $y = x^2 + x - 2$ By drawing an appropriate straight line, solve the equation:</p> $x^2 + x - 2 = x + 1$	Find the length x																	
Evaluate: $100^{-\frac{1}{2}}$			Find the length y																	
Simplify: $\sqrt{5} \times 2\sqrt{20}$																				
Simplify: $\sqrt{50}$																				
You are told that $y \propto x^2$ and that when $x = 2$, $y = 50$. Find the equation linking x and y																				
Solve: $x^2 + 4x + 3 = 0$		Find the length from A to C	Circle theorem. Find x																	
Simplify: $\frac{x}{x+2} + \frac{3}{x+1}$		 2cm 3cm 1cm	 x 52																	
Solve: $\frac{x^2}{2} = 3 - x$			Find the area of a sector with a radius of 3cm and an angle of 20°	Find the frequency density for this continuous data:																
Make x the subject: $ax + 4 = bx$			<table border="1"> <thead> <tr> <th>Height</th> <th>Frequency</th> <th>Class width</th> <th>Freq. Density</th> </tr> </thead> <tbody> <tr> <td>$0 \leq h < 1$</td> <td>5</td> <td></td> <td></td> </tr> <tr> <td>$1 \leq h < 3$</td> <td>10</td> <td></td> <td></td> </tr> <tr> <td>$3 \leq h < 6$</td> <td>12</td> <td></td> <td></td> </tr> </tbody> </table>	Height	Frequency	Class width	Freq. Density	$0 \leq h < 1$	5			$1 \leq h < 3$	10			$3 \leq h < 6$	12			
Height	Frequency	Class width	Freq. Density																	
$0 \leq h < 1$	5																			
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$3 \leq h < 6$	12																			
Simplify: $\frac{x^2 + 3x}{x^2 + 5x + 6}$																				
Does the following represent a length, area or volume: $a(x + y)$																				

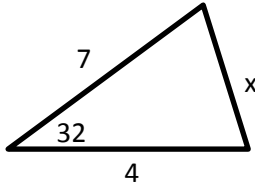
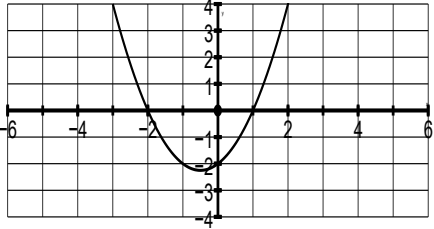
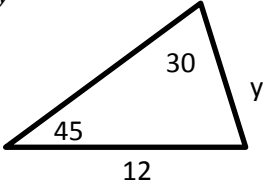
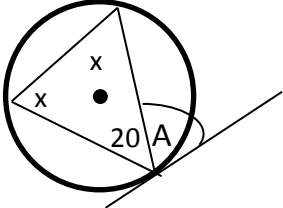
Grade A Core Skill Sheet 2

Evaluate: $2^{-2} \times 4^{\frac{1}{2}}$		<p>You are given the graph $y = x^2 + x - 2$ By drawing an appropriate straight line, solve the equation:</p> $x^2 + x - 2 = -x - 1$	Find the length x																
Evaluate: $64^{-\frac{2}{3}}$																			
Simplify: $(3\sqrt{2})^2$				Find the angle y															
Simplify: $\sqrt{18}$				Find the size of the reflex angle at centre															
You are told that $y \propto x^3$ and that when $x = 10$, $y = 500$. Find the equation linking x and y																			
Solve: $x^2 + 7x - 18 = 0$		Find the length x		Work out a stratified sample of 50 from the following population															
Simplify: $\frac{x+2}{3} + \frac{5}{x}$				<table border="1"> <thead> <tr> <th></th> <th>Yr7</th> <th>Yr8</th> <th>Yr9</th> <th>Yr10</th> </tr> </thead> <tbody> <tr> <td>Population</td> <td>120</td> <td>80</td> <td>74</td> <td>96</td> </tr> <tr> <td>Sample</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Yr7	Yr8	Yr9	Yr10	Population	120	80	74	96	Sample				
	Yr7	Yr8	Yr9	Yr10															
Population	120	80	74	96															
Sample																			
Solve: $y = x + 1$ $y = x^2 + 7x + 9$																			
Make x the subject: $\frac{x}{a+x} = 2$																			
Simplify: $\frac{x^2 - 9}{x(x+3)}$		A sphere has a volume of 32cm^3 . Find its radius																	
Does the following represent a length, area or volume: πa																			

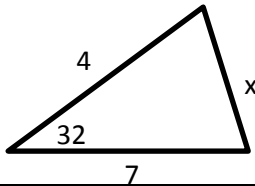
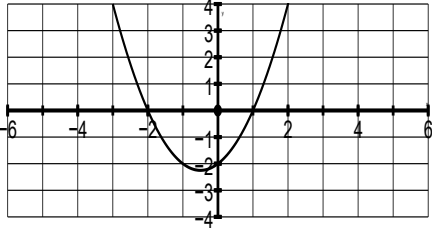
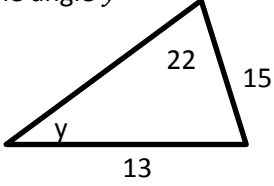
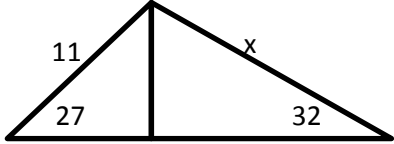
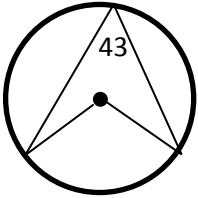
Grade A Core Skill Sheet 3

<p>Evaluate:</p> $\frac{169^{\frac{1}{2}}}{4^{\frac{1}{2}}}$		<p>You are given the graph $y = x^2 + x - 2$ By drawing an appropriate straight line, solve the equation:</p>		<p>Find the size of angle x</p>										
<p>Simplify:</p> $(5\sqrt{2})^2$		$x^2 - x - 1 = 0$												
<p>Simplify:</p> $3\sqrt{45}$				<p>Find the angle y</p>										
<p>You are told that y is inversely proportional to x. Find the equation is $x = 2$ when $y = 5$</p>		<p>What is the longest pencil which can fit into a pencil case with dimensions 7cm by 5cm by 6cm</p>		<p>The line drawn is a tangent. Find A</p> 										
<p>Solve: $x^2 + x - 20 = 2x$</p>		<p>Make x the subject:</p> $\frac{5}{x} + a = b$		<p>Two people are picked at random from the following group of children. Find the probability that they are BOTH boys.</p>										
<p>Simplify:</p> $\frac{5x^2 - 45}{x^2 + 5x + 6}$		<p>Find the area of a sector with a radius of 3cm and an angle of 20°</p>		<table border="1" data-bbox="1451 1118 2047 1230"> <thead> <tr> <th></th> <th>Year 7</th> <th>Year 8</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>7</td> <td>4</td> </tr> <tr> <td>Girls</td> <td>3</td> <td>9</td> </tr> </tbody> </table>		Year 7	Year 8	Boys	7	4	Girls	3	9	
	Year 7	Year 8												
Boys	7	4												
Girls	3	9												
<p>Does the following represent a length, area or volume or nothing:</p> $\pi a + ab$														

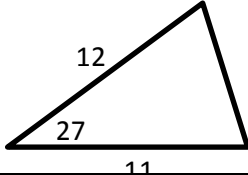
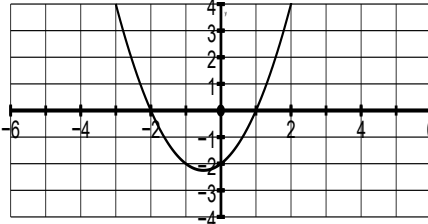
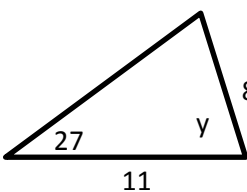
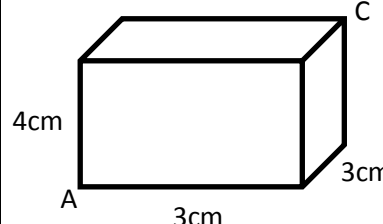
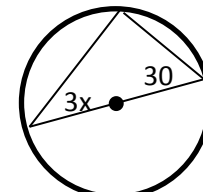
Grade A/A* Core Skill Sheet 4

<p>Evaluate:</p> $128^{-\frac{2}{7}}$		<p>You are given the graph $y = x^2 + x - 2$ By drawing an appropriate straight line, solve the equation:</p>		<p>Find x</p> 										
<p>Simplify:</p> $(\sqrt{2} + \sqrt{8})^2$		$x^2 + x - 2 = x + 1$												
<p>Simplify:</p> $5\sqrt{32}$				<p>Find y</p> 										
<p>You are told that y is proportional to x. Find the equation if $x = 2$ when $y = 11$</p>		<p>One piece of pipe has a mass of 40kg to 1 sf. A crane can carry 500kg to 1sf. How many pieces of pipe can it safely carry?</p>		<p>The line drawn is a tangent. Find A</p> 										
<p>Solve: $3x^2 + 4x + 1 = 0$</p>		<p>Find the area of a sector with a radius of 5cm and an angle of 35°. Leave your answer as a fraction in terms of pi</p>		<p>Two people are picked at random from the following group of children. Find the probability that they are BOTH girls.</p>										
<p>Simplify:</p> $\frac{(2x^3y^4)^2}{4x^{-3}y^{\frac{1}{2}}}$				<table border="1" data-bbox="1451 1129 2047 1241"> <thead> <tr> <th></th> <th>Year 7</th> <th>Year 8</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>5</td> <td>6</td> </tr> <tr> <td>Girls</td> <td>4</td> <td>11</td> </tr> </tbody> </table>		Year 7	Year 8	Boys	5	6	Girls	4	11	
	Year 7	Year 8												
Boys	5	6												
Girls	4	11												
<p>Solve to find x to 1 decimal place:</p> $\frac{5}{x+1} + \frac{3}{x+2} = 2$														
<p>Make x the subject:</p> $a(x+2) = b(x+y)$														
<p>Simplify:</p> $\frac{x^2 + 5x}{x^2 + 4x - 5}$														
<p>Does the following represent a length, area or volume or nothing:</p> $ab + a^2$														

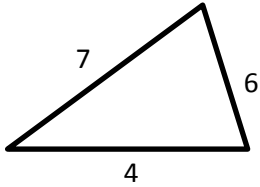
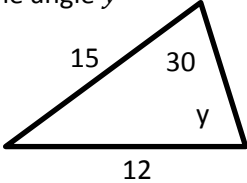
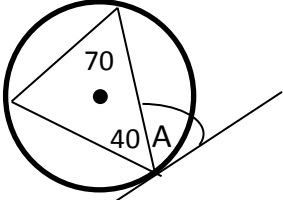
Grade A/A* Core Skill Sheet 5

<p>Evaluate:</p> $5^{-1} \times 100^{\frac{1}{2}}$		<p>You are given the graph</p> $y = x^2 + x - 2$		<p>Find the length x</p>																
<p>Evaluate:</p> $8^{\frac{4}{3}}$		<p>By drawing an appropriate straight line, solve the equation:</p>																		
<p>Simplify:</p> $\sqrt{2} + 5\sqrt{32}$		$x^2 + x - 3 = 0$		<p>Find the angle y</p>																
<p>Rationalise the denominator :</p> $\frac{5}{\sqrt{8}}$																				
<p>You are told that $y \propto x^2$ and that when $x = 5$, $y = 100$. Find the equation linking x and y</p>																				
<p>Solve: $x^2 - 9 = 0$</p>																				
<p>Simplify:</p> $\frac{x+2}{x-3} - \frac{4}{x+2}$		<p>Find the length x</p>		<p>Find the size of the reflex angle at centre</p>																
<p>Solve:</p> $y = 2x + 1$ $y = 2x^2 + 13x + 5$																				
<p>Make x the subject:</p> $a\sqrt{x+2} = b$				<p>Work out a stratified sample of 30 from the following population</p>																
<p>Simplify:</p> $\frac{x^3 + 2x^2}{x^2 - 4}$		<p>The surface area of a cylinder is 25π. Its height is 3cm. Find its radius</p>		<table border="1" data-bbox="1451 1102 2047 1214"> <thead> <tr> <th></th> <th>Yr7</th> <th>Yr8</th> <th>Yr9</th> <th>Yr10</th> </tr> </thead> <tbody> <tr> <td>Population</td> <td>87</td> <td>76</td> <td>57</td> <td>93</td> </tr> <tr> <td>Sample</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Yr7	Yr8	Yr9	Yr10	Population	87	76	57	93	Sample					
	Yr7	Yr8	Yr9	Yr10																
Population	87	76	57	93																
Sample																				
<p>Does the following represent a length, area or volume:</p> $ab + c$																				

Grade A/A* Core Skill Sheet 6

<p>Evaluate:</p> $243^{\frac{2}{3}}$		<p>You are given the graph</p> $y = x^2 + x - 2$		<p>Find the area of this triangle</p>																	
<p>Write as a fraction:</p> $0.323232 \dots$		<p>By drawing an appropriate straight line, solve the equation:</p>																			
<p>Expand:</p> $(\sqrt{2} + 3)^2$		$x^2 + x - 2 = 2 - \frac{x}{2}$		<p>Find y</p>																	
<p>Simplify:</p> $\sqrt{200}$																					
<p>You are told that $y \propto x^3$ and that when $x = 3$, $y = 54$. Find the equation linking x and y</p>																					
<p>Solve:</p> $25x^2 + 20x + 4 = 0$																					
<p>Simplify:</p> $\frac{x+2}{3x} + \frac{2}{x-1}$		<p>Find the length from A to C</p>		<p>Circle theorem. Find x</p>																	
<p>Solve:</p> $\frac{3}{x} = x + 1$																					
<p>Make x the subject:</p> $\frac{x}{x+a} = 2$				<p>Find the frequency density for this continuous data:</p>																	
<p>Simplify:</p> $\frac{3x^2 + 2x - 1}{5x^2 - 5}$		<p>Find the perimeter of a sector with a radius of 5cm and an angle of 60°</p>		<table border="1" data-bbox="1444 1085 1993 1268"> <thead> <tr> <th>Height</th> <th>Frequency</th> <th>Class width</th> <th>Freq. Density</th> </tr> </thead> <tbody> <tr> <td>$0 \leq h < 1$</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>$1 \leq h < 3$</td> <td>12</td> <td></td> <td></td> </tr> <tr> <td>$3 \leq h < 6$</td> <td>9</td> <td></td> <td></td> </tr> </tbody> </table>	Height	Frequency	Class width	Freq. Density	$0 \leq h < 1$	2			$1 \leq h < 3$	12			$3 \leq h < 6$	9			
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<p>Does the following represent a length, area or volume:</p> $a^2(b + a)$																					

Grade A/A* Core Skill Sheet 7

Evaluate: $\left(\frac{100\overline{2}^1}{2^{-2}}\right)^3$		Paul has 3 ham, 5 cheese and 4 pickly sandwiches. He picks and eats to wt random. Find the probability the sandwiches he eats are the same	Find the size of the largest angle 						
Simplify: $(2\sqrt{3} + 5)^2$			Find the angle y 						
Rationalise the denominator: $\frac{10}{3\sqrt{27}}$									
You are told that y is inversely proportional to x^2 . Find the equation is $x = 3$ when $y = 2$									
Solve: $x^3 + x^2 - 12x = 0$									
Simplify: $\left(\frac{16x^8y^2}{4x^2y^4}\right)^{-\frac{1}{2}}$		Two 3d shapes are similar. Once has a width of 5cm, the other a width of 12cm. The smaller has a mass of 80g. What is the mass of the larger shape?	The line drawn is a tangent. Find A 						
Solve to find x to 1 decimal place: $\frac{2x}{x-1} - \frac{3}{x+2} = 2$			What can you deduce?						
Make x the subject: $a(x-b)^2 + c = d$			Two people are picked at random from the following group of children. Find the probability that they are a different gender <table border="1" data-bbox="1451 1166 1850 1281"> <thead> <tr> <th></th> <th>class</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>14</td> </tr> <tr> <td>Girls</td> <td>12</td> </tr> </tbody> </table>		class	Boys	14	Girls	12
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Simplify: $\frac{5x^2 - 45}{x^2 + 5x + 6}$		A sector has an area of $25cm^2$ and an angle of 35° . Find its radius to 3sf							
Does the following represent a length, area or volume or nothing: $\pi r^2 + a^2$									

