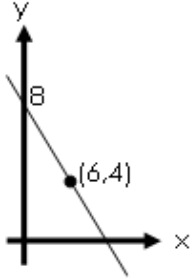
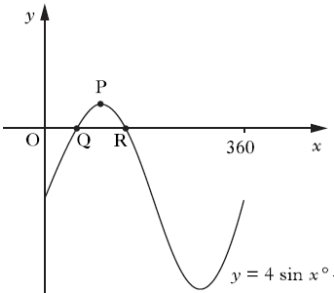
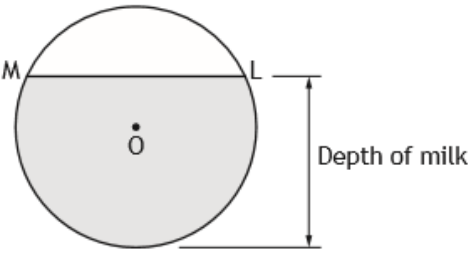
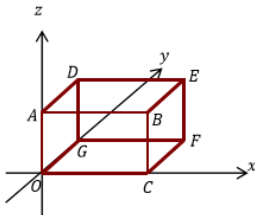


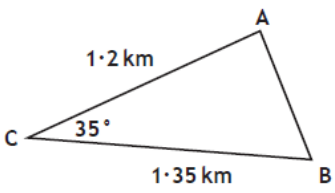
		My Working
<b>1</b>	Evaluate  $6\frac{1}{5} - 2\frac{1}{3}$	
<b>2</b>	Find the equation of the line  	
<b>3</b>	Express  $a^2(2a^{\frac{-1}{2}} + a)$ in its simplest form	
<b>4</b>	Solve  $x - 2(x - 1) = 8$	
<b>5</b>	Solve  $4\sin x = 2$ for $0^\circ < x < 360^\circ$	

		My Working
<b>6</b>	Find the standard deviation for  $3, 8, 14, 20$  Give your answer to 3 significant figures	
<b>7</b>	Factorise fully  $2x^2 - 32$	
<b>8</b>	A house is bought for £74,000, increases in value 4.5% every year for 3 years.  What is its new value?	
<b>9</b>	A triangle has sides 83cm, 79cm and 19cm.  Is it right angled?	
<b>10</b>	Find the roots of the equation  $y = x^2 - x - 6$	

		My Working
11	<p>Evaluate</p> $14.2 + 8.3 \times 40$	
12	<p>Find the equation of the straight line passing through the points <math>(2, -3)</math> and <math>(2, 9)</math></p>	
13	<p>Simplify</p> $\frac{\sqrt{12}}{\sqrt{60}}$	
14	<p>Change the subject of the formula to <math>b</math>.</p> $L = 3a - \sqrt{b}$	
15	<p>The graph shows <math>y = 5\sin x - 4</math>. Find P and Q</p> 	

		My Working
<b>16</b>	Solve to one decimal place  $2x^2 + 4x - 9 = 0$	
<b>17</b>	Factorise  $2x^2 + 7x - 15$	
<b>18</b>	John paid £297.50 for a laptop in a sale. The discount in the sale was 15%. Calculate the original price.	
<b>19</b>	 <p>LM = 1.2m            Radius = 1.8m            Find the depth of milk</p>	
<b>20</b>	Find the roots of the equation  $y = x^2 - 2x - 15$	

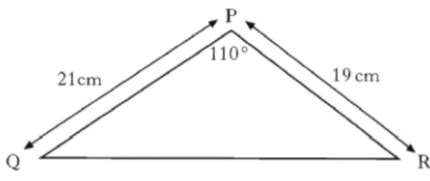
		My Working
<b>21</b>	<p>E has coordinates (5, 3, 1) Find the shortest distance between D and C</p> 	
<b>22</b>	<p>Find the equation of a straight line through (2, -5) and parallel to <math>y = 3x - 5</math></p>	
<b>23</b>	<p>Simplify</p> $x^{\frac{1}{2}} \left( x^{\frac{1}{4}} + 3 \right)$	
<b>24</b>	<p>Solve</p> $x - 3(x - 7) = 9$	
<b>25</b>	<p>Sketch the graph of</p> $y = 4\cos 2x$ <p>for <math>0 \leq x \leq 360</math></p>	

		My Working
<b>26</b>	Find the volume of a sphere with radius 9m, giving your answer to two significant figures	
<b>27</b>	Remove the brackets and simplify  $(2x + 2)^2 - 2(x^2 - 2)$	
<b>28</b>	John paid £20,000 for a motorbike but it depreciated 5.5% each year for 7 years. What was its value after 7 years?	
<b>29</b>	<div style="text-align: center;">  </div> <p>Find length AB</p>	
<b>30</b>	Prove  $\sin^3 x + \sin x \cos^2 x = \sin x$	

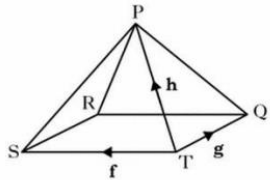
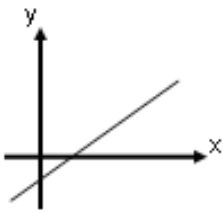
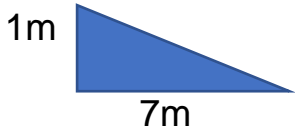
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**Exam Questions**


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		My Working
<b>31</b>	Evaluate without a calculator:  $\frac{2.1+3.2 \times 5}{2^3}$	
<b>32</b>	Does the point $(-2, 4)$ lie on the line $y = 3x + 10$ ?  Explain your answer.	
<b>33</b>	Simplify  $\sqrt{40} + 4\sqrt{10} + \sqrt{90}$	
<b>34</b>	Simplify  $(x - 5)(3x - 2)$	
<b>35</b>	Sketch the graph of  $y = 3\sin(0.5x)$  for $0 \leq x \leq 360$	

		<b>My Working</b>
<b>36</b>	Solve $3x^2 + 3x - 7 = 0$ giving your answer correct to 1 decimal place	
<b>37</b>	Factorise $6x^2 - 24x - 30$	
<b>38</b>	In a sale, a book now cost £36. What was it worth before a 20% discount?	
<b>39</b>	Find the area of the triangle 	
<b>40</b>	Sketch $y = (x + 2)(x - 3)$  Label the intercepts and turning point	

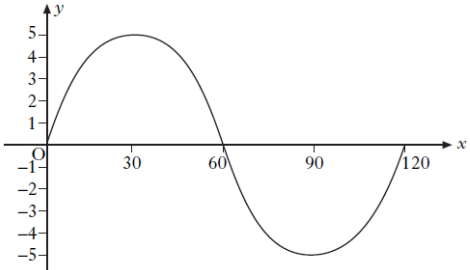


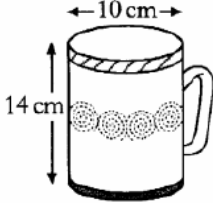
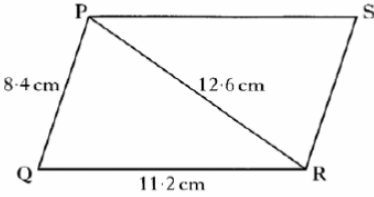
		My Working
41	<p>Express <math>\overrightarrow{RP}</math> in terms of <math>f, g</math> and <math>h</math></p> 	
42	 <p>Chose the correct equation for the above graph</p> <ol style="list-style-type: none"> <li><math>y = 2x + 1</math></li> <li><math>y = -2x + 1</math></li> <li><math>y = 2x - 1</math></li> <li><math>y = 2x^2 - 1</math></li> </ol>	
43	<p>Find the longest side of this right-angled triangle leaving your answer as a surd.</p> 	
44	<p>Solve</p> $11 - 2(1 + 3x) < 39$	
45	<p>Solve <math>2\tan x + 5 = -4</math></p> <p>for <math>0^\circ &lt; x &lt; 180^\circ</math></p>	

		My Working
<b>46</b>	<p>The standard deviation of</p> <p style="text-align: center;">1, 2, 2, 2, 8 is <math>\sqrt{a}</math></p> <p>Find a</p>	
<b>47</b>	<p>Multiply out the brackets and simplify</p> <p style="text-align: center;"><math>(3x + 2)(x^2 - 4x + 3)</math></p>	
<b>48</b>	<p>The population of the UK is 64.1 million. If it increased by 3% for the next 7 years, what would it be?</p>	
<b>49</b>	<p>The square below has side length <math>y</math>. If the diagonal is 6m. Find the exact length <math>y</math></p> <div style="text-align: center;">  </div>	
<b>50</b>	<p>Show that</p> $\frac{1 - \cos^2 a}{\cos^2 a} = \tan^2 a$	

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**Exam Questions**

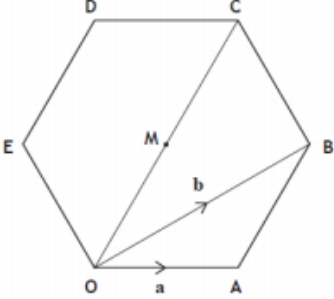
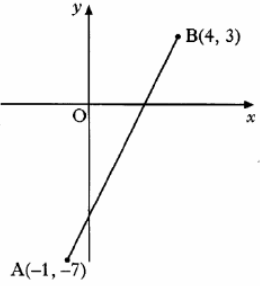
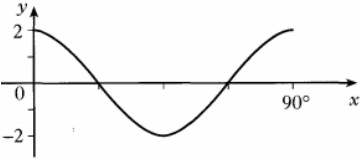
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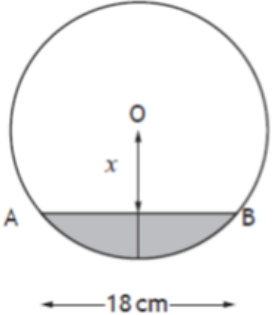
		My Working
<b>51</b>	Evaluate  $\frac{5}{12} \times 2\frac{2}{9}$  Give the answer in its simplest form	
<b>52</b>	A straight line has gradient 4 and it passes through the points (2,4) and (1, a) Find the value of a	
<b>53</b>	Evaluate  $2^0 + 3^{-1}$	
<b>54</b>	Change the subject of the formula to u  $v^2 = u^2 + 2as$	
<b>55</b>	What is the equation of the graph below?  	

		My Working
<b>56</b>	<p>Calculate the capacity of the cylindrical mug below</p>  <p style="text-align: center;"> <math>\leftarrow 10 \text{ cm} \rightarrow</math>  <math>\uparrow 14 \text{ cm} \downarrow</math> </p>	
<b>57</b>	<p>Factorise</p> $(100x^2 - 500x - 2400)$	
<b>58</b>	<p>The restaurant bill included 8% tax. If the bill was £324, what was the bill <b>before</b> tax?</p>	
<b>59</b>	<p>Calculate angle PQR</p>  <p style="text-align: center;"> <math>PQ = 8.4 \text{ cm}</math>  <math>QR = 11.2 \text{ cm}</math>  <math>PR = 12.6 \text{ cm}</math> </p>	
<b>60</b>	<p>Write down the turning point and the equation of the axis of symmetry</p> $y = (x - 3)^2 + 4$	

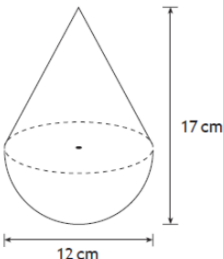
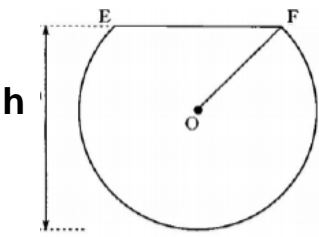
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**Exam Questions**

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		My Working
<b>61</b>	<p>Express <math>\overrightarrow{AB}</math> in terms of a &amp; b Express <math>\overrightarrow{OC}</math> in terms of a &amp; b</p> <div style="text-align: center;">  </div>	
<b>62</b>	<p>Find the equation of this line</p> <div style="text-align: center;">  </div>	
<b>63</b>	<p>Find</p> $27^{\frac{2}{3}}$	
<b>64</b>	<p>Solve</p> $2x - 1 = \frac{x - 4}{3}$	
<b>65</b>	<p>What is the equation of the graph below</p> <div style="text-align: center;">  </div>	

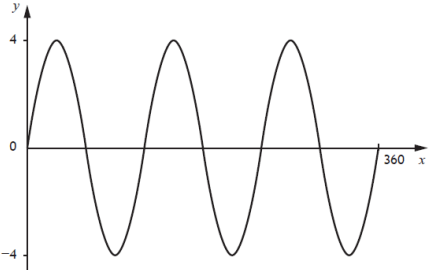
		My Working
66	<p>Show that the s.d. of 1,1,1,2,5 is <math>\sqrt{3}</math> and write down the s.d. of 101,101,101,102,105</p>	
67	<p>Multiply out and simplify</p> $2(x^2 - 4x + 3) - x(x - 3)$	
68	<p>Rob normally cycles a total distance of 56 miles per week. He increases his distance by 15% each week for the next three weeks. How many miles will he cycle in the third week?</p>	
69	<p>Depth of water in the cylindrical tank is 5m. Calculate the radius</p> 	
70	<p>Show that</p> $\frac{\tan x}{\sin x} = \frac{1}{\cos x}$	

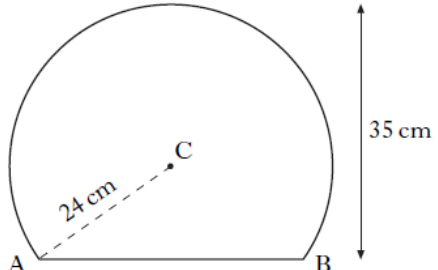
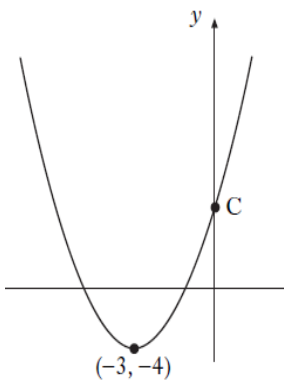
		My Working
<b>71</b>	Without using a calculator find $17.5\%$ of £90	
<b>72</b>	For the straight-line equation $y = mx + c$  When $m > 0$ and $c < 0$ sketch a possible graph	
<b>73</b>	Simplify $\frac{6xy^3}{8x^4y^2}$	
<b>74</b>	Write as a single fraction $\frac{2}{x} + \frac{4}{x-2}$	
<b>75</b>	Solve the equation $11\cos x^\circ - 2 = 3$ for $(0 \leq x \leq 360^\circ)$	

		My Working
<b>76</b>	<p>Find volume to 2 s.f.</p> 	
<b>77</b>	<p>Factorise</p> $16x^2 - 1$	
<b>78</b>	<p>A 900g box has 20% extra washing powder. How much washing powder was in a standard size box?</p>	
<b>79</b>	<p>EF = 18 m OF = radius = 15 m Find h</p> 	
<b>80</b>	<p>Describe the nature of the roots</p> $y = x^2 - 3x + 3$	

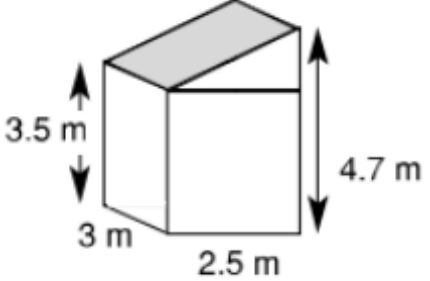
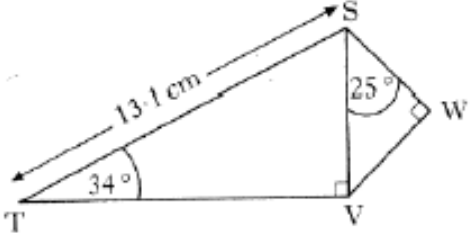


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		My Working
<b>81</b>	Evaluate  $3\frac{2}{5} - 2\frac{1}{3}$	
<b>82</b>	Find the gradient and y-intercept for the straight line:  $3x - 17 = 15y$	
<b>83</b>	Express the below with a rational denominator in its simplest form  $\frac{8}{\sqrt{8}}$	
<b>84</b>	Change the subject of the formula to $R$  $P = R^3b - 5$	
<b>85</b>	State the equation of the graph below  	

		My Working
<b>86</b>	Make two valid comparisons for the two maths scores:  Class A: Mean = 65%, s.d. = 12% Class B: Mean = 59%, s.d. = 10%	
<b>87</b>	Factorise  $4a^2 - 60a - 136$	
<b>88</b>	A new car cost £25000. Its value was expected to decrease every year by 20%.  Find its expected value after 7 years.	
<b>89</b>	Find the length AB  	
<b>90</b>	Below is a graph of $y = (x - a)^2 + b$ Find coordinates of c  	

		My Working
<b>91</b>	Find $ u $ , the magnitude of  $u = \begin{bmatrix} 6 \\ -13 \\ 18 \end{bmatrix}$	
<b>92</b>	Find the equation of a straight line between $(-7, 4)$ and $(-3, 5)$	
<b>93</b>	Express in its simplest form  $y^8 \times (y^3)^{-2}$	
<b>94</b>	Solve for $y$  $\frac{2(y-3)}{4} = \frac{y+5}{3}$	
<b>95</b>	Solve algebraically the equation  $\sqrt{3}\sin x^\circ - 1 = 0$  for $0 \leq x \leq 360$	

		My Working
<b>96</b>	<p>Find the total volume of the shape below.</p> 	
<b>97</b>	<p>Multiply out and simplify</p> $(y - 2)^3$	
<b>98</b>	<p>I bought a new racing bike for £1500. This included VAT at 20%. What was the cost before VAT was added?</p>	
<b>99</b>	<p>Find the length SW</p> 	
<b>100</b>	<p>Express</p> $x^2 - 14x + 44$ <p>in the form</p> $(x - a)^2 + b$	