

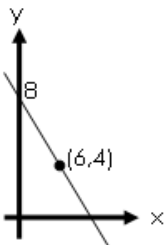
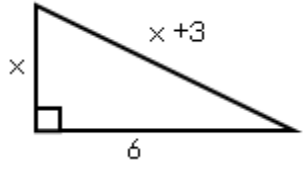
Homework Sheet 1

Mark:

1	Evaluate $3\frac{1}{3} - 2\frac{4}{5}$	
2	Find the equation of the straight line passing through these points: (2,-3) and (3,9).	
3	Simplify $m^5 \times m^{-9}$	
4	Change the subject of the formula to m : $k = \frac{mn^2}{p}$	
5	Solve $4\sin x^\circ = 2$ (for $0 < x < 360$)	
6	Find the mean and standard deviation for this data: 3, 4, 6, 8, 8	
7	Factorise fully: $2t^2 - 18$	
8	A classic car bought for £74,000 increases in value by 6.5% every year for 3 years. Its new value?	
9	Is a triangle with sides 82cm, 80cm and 18cm right-angled?	
10	Find the roots of the equation $y = x^2 - 2x - 15$	

Homework Sheet 2

Mark:

<p>1</p> <p>Evaluate $14.3 + 8.2 \times 30$</p>	
<p>2</p> <p>Find the equation of the given straight line.</p> 	
<p>3</p> <p>Simplify $\frac{\sqrt{12}}{\sqrt{60}}$</p>	
<p>4</p> <p>Change the subject of the formula to r: $p = \frac{3r^2}{y}$</p>	
<p>5</p> <p>Solve $5\tan x^\circ + 3 = 4$ (for $0 < x < 360$)</p>	
<p>6</p> <p>Solve this equation to 2d.p. $3x^2 + 7x - 4 = 0$</p>	
<p>7</p> <p>Factorise fully: $3x^2 + 9x - 30$</p>	
<p>8</p> <p>A bottle contains 336ml which is 30% more than it used to. What was the original volume?</p>	
<p>9</p>  <p>Find the value of x:</p>	
<p>10</p> <p>Find the roots of the equation $y = 2x^2 - 9x - 5$</p>	

Homework Sheet 3

Mark:

1	Find $4\frac{2}{5} \div \frac{1}{4}$	
2	Find the equation of a straight line through (3,-5) parallel to $y=4x+2$.	
3	Remove brackets and simplify $a^{\frac{1}{2}}\left(a^{\frac{1}{2}}-2\right)$	
4	Solve $x-2(x+1) = 8$	
5	Sketch the graph of $y=4\cos 2x^\circ$ for $0 \leq x \leq 360$	
6	Find the volume of a sphere with radius 5cm, giving your answer to two significant figures.	
7	Remove brackets and simplify $(2x+3)^2 - 3(x^2-6)$	
8	Dave's car was bought for £16,000 but is losing 7.5% each year. What will it be worth in 4 years?	
9	Triangle ABC has $AC=5.6\text{m}$, angle $ABC=83^\circ$ and angle $ACB=40^\circ$. Find the length of AB.	
10	Describe the nature of the roots of $y = 5x^2 - 7x - 2$	

Homework Sheet 4

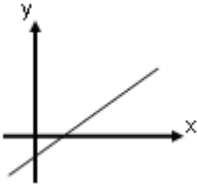
Mark:

1	Without a calculator: $\frac{2.3+2.1 \times 5}{2^3}$	
2	Does the point (-2,5) lie on the line $y = 3x + 10$? Explain your answer.	
3	Simplify, leaving your answer as a surd: $2\sqrt{20} - 3\sqrt{5}$	
4	Simplify $(x + 4)(3x - 1)$	
5	Sketch the graph of $y = 3\sin(0.5x^\circ)$ for $0 \leq x \leq 360$	
6	Solve $3x^2 - 11x + 1 = 0$, giving your answers to two decimal places.	
7	Factorise $3x^2 - 12x - 15$	
8	In a Spring Sale, a bag of springs now costs £3.60. What was it worth before the 20% sale?	
9	What is the area of an equilateral triangle of side 40cm?	
10	Sketch $y = (x - 3)(x + 2)$. Label the intercepts and turning point.	

1

If $f(x) = x^2 + 3x$, find $f(-2)$

2



Which of these could this line represent?

A: $y = 3x + 2$ B: $y = -3x + 2$ C: $y = 3x - 2$

D: $y = 3x^2 - 2$ E: $y = -3x - 2$

3

Find the length of the longest side on a right angled triangle with smaller sides 1cm and 7cm (leave your answer as a simplified surd).

4

Solve $2x + 15 \leq 3(x - 1)$

5

Solve $4\tan x^\circ = 2$
(for $0 < x < 180$)

6

Calculate the standard deviation for this:
3, 8, 14, 20

7

Expand and simplify
 $(3x+1)(x^2-5x+4)$

8

China's population is 1.34×10^9 .
If this increases by 5% for the next 6 years, what will it be?

9

A square has side x .
It has a diagonal of 6cm.
Calculate the exact length of x .

10

How many real solutions are there to the equation $2x^2 - 2x + 3 = 0$?

Homework Sheet 6

Mark:

1

Find $\frac{1}{2}\left(1\frac{2}{7}-\frac{5}{9}\right)$

2

A straight line with gradient 5 passes through (4,8) and (2,a).
Find the value of a.

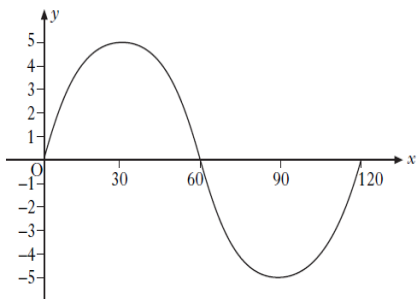
3

Expand $k^2\left(3k+2k^{-4}-k^{\frac{1}{2}}\right)$

4

Change the subject of the formula to W: $5W - J^2 = \frac{4}{L}$

5



This is the graph
 $y = a \sin(bx)$

Find the value of a and b.

6

Can a cylinder with height 10cm and diameter 8cm hold 500ml of water? Explain your answer.

7

Factorise fully: $10x^2 - 50x - 240$

8

My total bill for fixing my car included 8% tax. If the bill was £324, what was the bill **before** tax?

9

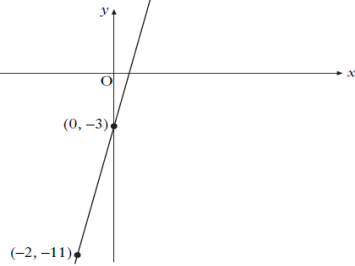
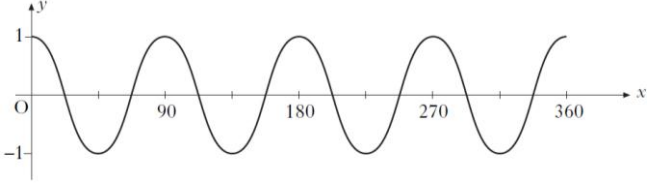
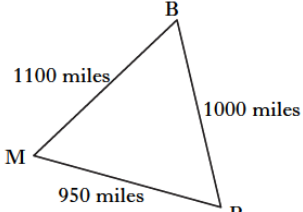
A triangle has sides 12cm, 14cm and 21cm. Find the sizes of its biggest angle.

10

Sketch $y = (2x - 5)(x + 1.5)$
Label the intercepts and turning point.

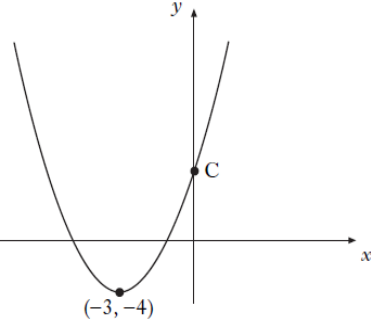
Homework Sheet 7

Mark:

<p>1 Without a calculator find $\frac{4}{7}$ to three decimal places.</p>	
<p>2</p>  <p>What is the equation of this line?</p>	
<p>3 Find $27^{\frac{2}{3}}$</p>	
<p>4 Solve $3x + 1 = \frac{x - 5}{2}$</p>	
<p>5</p>  <p>What is the value of a in this graph $y = \cos(ax^\circ)$</p>	
<p>6 Show that the standard deviation of 1,1,1,2,5 is $\sqrt{3}$ and write down the s.d. of 101,101,101,102,105.</p>	
<p>7 Multiply out and simplify: $3(x^2 - 5x + 1) - 2x(x - 4)$</p>	
<p>8 If these shapes have the same height which has greater volume: a cone with radius 3cm or a cylinder with radius 2cm?</p>	
<p>9</p>  <p>Here's the Bermuda Triangle (Bermuda-Miami-Puerto Rico). Find angle BMP</p>	
<p>10 Write down the axis of symmetry and the coordinates of the turning point of $y = (x - 6)^2 + 2$</p>	

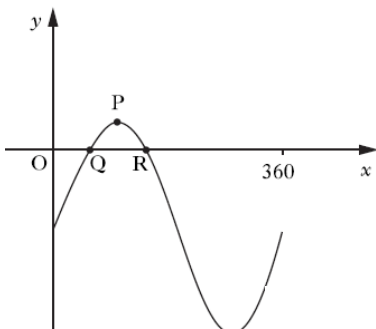
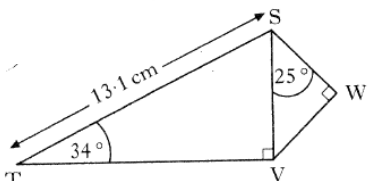
Homework Sheet 8

Mark:

<p>1</p> <p>Without a calculator find 35% of £84.50</p>	
<p>2</p> <p>A straight line is given by $y=mx+c$. Sketch this to illustrate a possible graph when $m > 0$ and $c < 0$.</p>	
<p>3</p> <p>Simplify $\frac{ab^6}{a^2b^3}$</p>	
<p>4</p> <p>Write $\frac{3}{a} + \frac{5}{a-1}$ as a single fraction</p>	
<p>5</p> <p>Solve $4\sin x^\circ = 2\sin x^\circ + 1$ for $0 \leq x \leq 360$</p>	
<p>6</p> <p>Solve $3x^2 + 2x = 10$, giving your answer to two decimal places.</p>	
<p>7</p> <p>Factorise $10.2^2 - 9.8^2$. Can you use your answer to see what the value of this expression is?</p>	
<p>8</p> <p>The big jar of marmalade (450g) has 12.5% more than the standard one. What's in the standard one?</p>	
<p>9</p> <p>Plot the point A (-5,2) on a coordinate diagram. How far is it from A to the origin?</p>	
<p>10</p>  <p>Here is the graph of $y=(x-a)^2+b$ Find a, b and use your equation to find c.</p>	

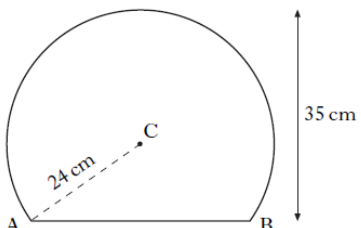
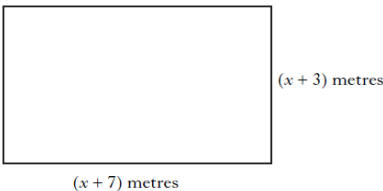
Homework Sheet 9

Mark:

1	Find the mean of $\frac{3}{5}, \frac{5}{8}, \frac{3}{4}, \frac{1}{2}$.	
2	Find the gradient and y-intercept for this straight line: $6x + 2y = 5$	
3	Express $\frac{12}{\sqrt{2}}$ with a rational denominator in its simplest form.	
4	Change the subject of the formula to h: $A = \frac{1}{2}h(a + b)$	
5	 <p>The graph shown is $y = 5\sin x^\circ - 4$. Find the coordinates of Q and P.</p>	
6	<p>4M1 Test Scores: Mean=75%, s.d.=10%</p> <p>4M2 Test Scores: Mean=69%, s.d.=8%</p> <p>Give two valid comparisons.</p>	
7	Factorise fully $2y^2 - 30y - 68$	
8	A patient gets 250mm of a drug at 3pm. Every hour the amount of blood decreases by 20%. How much is in the blood at 6pm?	
9	 <p>Find the length of SW.</p>	
10	Describe the types of roots this quadratic has: $y = 3x^2 + 2x$	

Homework Sheet 10

Mark:

<p>1 Jamie is baking cakes for a party. Each cake needs $\frac{2}{5}$ block of butter. If he has 7 blocks of butter how many cakes can he make?</p>	
<p>2 Find the equation of a straight line between $(-8, 3)$ and $(-4, -5)$.</p>	
<p>3 Express $p^3(p^{-3} - \sqrt{p})$ in simplest form.</p>	
<p>4 Solve for x: $\frac{3(x-1)}{5} = \frac{x+1}{2}$</p>	
<p>5 Solve $\sin^2 x = \frac{1}{4}$ for $0 \leq x \leq 360$</p>	
<p>6 A cuboid has a volume of 1.98m^3. It has a length of 110cm and a breadth of 150cm. Find the height.</p>	
<p>7 Multiply out and simplify: $(x+2)^3$</p>	
<p>8 My microwave cost £150 (includes 17.5% VAT). How much did it cost before VAT was added?</p>	
<p>9</p>  <p>Find the length of AB.</p>	
<p>10 This garden has an area of 45m^2. Find x.</p> 	

Summary

Keep a record of the questions that you are getting right.

Use this to identify the areas where you are struggling a bit.

Ask your teacher for help with these areas!

10: Quadratics (Solving, Graphs)										
9: Triangle Rules (Pythagoras, Sine Rule, Cosine Rule, Area of Triangle)										
8: Percentages (including compound interest, appreciation, depreciation, working backwards)										
7: Factorisation and Multiplying Out Brackets										
6: Using formula (including standard deviation, quadratic formula and volumes)										
5: Trigonometric graphs and equations										
4: Algebra (including changing the subject of a formula, solving equations and inequations)										
3: Surds and Indices										
2: Equation of a straight line										
1: Basic calculations (including fractions and BODMAS)										
	Homework 1	Homework 2	Homework 3	Homework 4	Homework 5	Homework 6	Homework 7	Homework 8	Homework 9	Homework 10