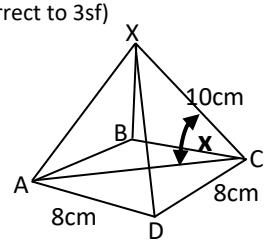
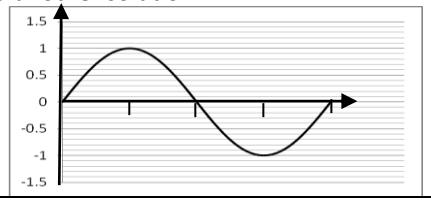
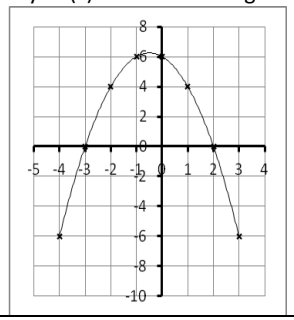
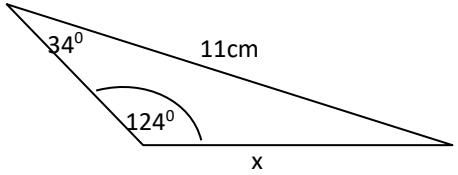
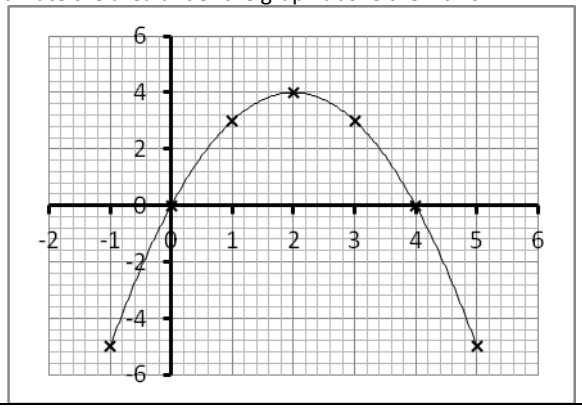
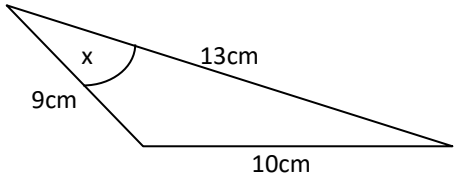
Maths Key Skills **Stage 11: Skill Check 8**

Name: ..... Date: ..... Class/Group: .....

A: Number & Algebra		B: Algebra, Proportion, Geometry & Measure		C: Geometry & Measure & Statistics	
1. Simplify: **$\sqrt{45} + \sqrt{20}$**	*11:1*	11. Make (**y**) the new subject of : **xy + 4x = 6 + y**	*11:12*	21. Work out the angle that XC makes with the plane ABCD. (correct to 3sf) 	*11:26*
2. Expand & simplify: $(5+\sqrt{2})(5-\sqrt{2})$	*11:2*	12. One solution for **sinx = -0.2** is **x =192^0**. Use the graph to find another solution. 	*11:14*		
3. If x=18 & y=12(both to nearest integer) Work out maximum value of: **x + y**	*11:3*	13. This is the graph of y = f(x). Sketch on the grid: **y = -f(x)** 	*11:15*	22. Find the size of side 'x'? (1dp) 	*11:27*
4. Simplify the following fraction: $\frac{2x^2 - x - 3}{4x^2 - 9}$	*11:4*	14. Estimate the area under the graph above the x-axis 	*11:16*	23. Find the size of the angle 'x'?(3sf) 	*11:28*
5. Solve: $\frac{x-8}{x+3} = \frac{x-2}{x-1}$	*11:5*	15. Find equation of tangent at the point P(-2, 5) on a circle with centre (5,3)	*11:18*		

6. If $g(x) = x^2+1$, work out:

$g^{-1}(x)$

11:7

7. Find the turning point of:

$y= x^2 -2x - 5$

11:8

8. Solve by completing the square:

$x^2 - 12x - 5 = 12$

(Write down the EXACT values)

11:9

9. To solve: **$4x^2 -5x -3= 0$** by formula. Give answers in surd form.

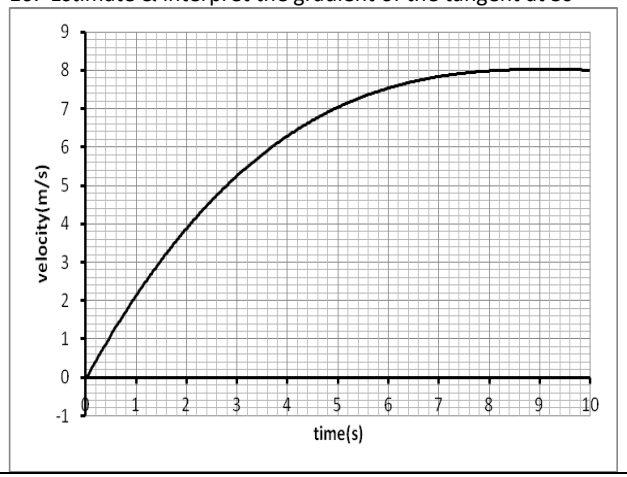
11:10

$\square \pm \sqrt{\square}$ over $\square$

10. Write down the solution set for: **$(x+3)(2x-5) \geq 0$**

11:11

16. Estimate & interpret the gradient of the tangent at 5s



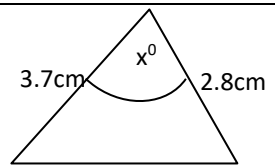
11:20

17. $x^3 - 4x + 5 = 0$ can be solved using the iteration formula: $x_{n+1} = \sqrt[3]{4x_n - 5}$ Correct to 2dp

Start with **$x_1 = -2$** & work out an approximation for x by finding **x_5**

11:21

18. Work out the angle of this triangle With an area of $5cm^2$ (Correct to 2sf)



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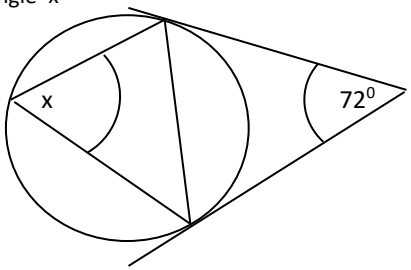
19. Find the size of angle 'x'



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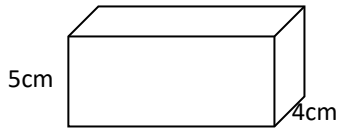
20. Work out the length of the diagonal of the cuboid. (1dp)



11:24

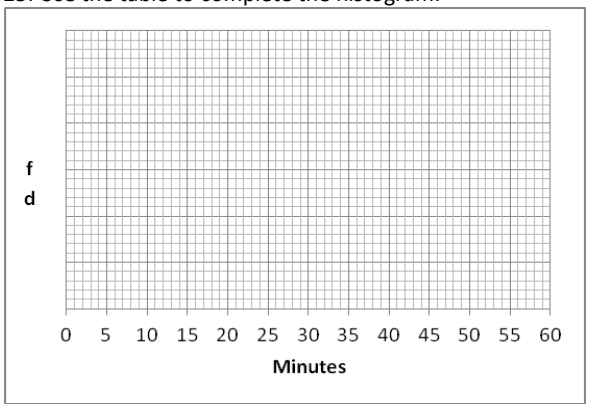
24. $\overrightarrow{AB} = 2\underline{b} - \frac{1}{2}\underline{a}$ and $\overrightarrow{AD} = 3\underline{b} - \frac{3}{4}\underline{a}$

Show clearly that A, B and D lie in a straight line (i.e. points are collinear)

Working out

11:29

25. Use the table to complete the histogram:



Time(min)	Frequency	fd
$0 < t \leq 5$	3	
$5 < t \leq 15$	5	
$15 < t \leq 40$	6	
$40 < t \leq 60$	6	

11:30

Total (A)		Total (B)		Total (C)	
Test Total (A+B+C)		R (0-9)	Y (10-19)	G (20-25)	