Maths Key Skills **Stage 11: Skill Check 1**

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

A: Number & Algebra

1. Write √50 in the form k√2 *11:1*

2. Rationalise the denominator: $\frac{1}{\sqrt{5}}$ *11:2*

3. If x = 6.4 (1dp) and y = 8.3(1dp)
Work out maximum value of x + y *11:3*

4. Simplify the following fraction: *11:4*

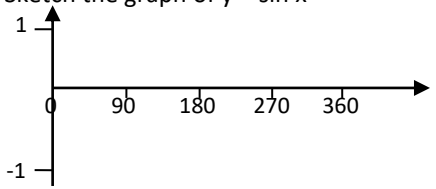
$$\frac{x^2+x-6}{x^2-7x+10}$$

5. Solve: $\frac{5}{x+1} + \frac{3}{x-1} = 2$ *11:5*

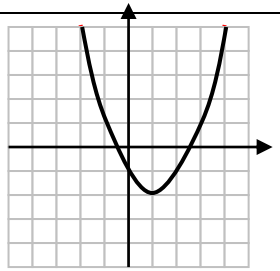
B: Algebra, Proportion, Geometry & Measure

11. Rearrange the formula: ab + bc = T to make '**b**' the new subject. *11:12*

12. Sketch the graph of y = sin x *11:14*

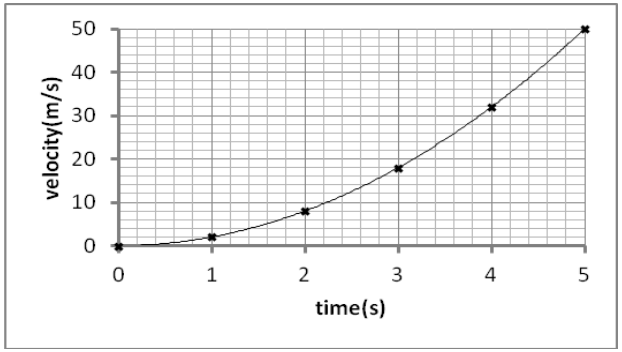


13. Sketch on the grid: y = -f(x) *11:15*



y = f(x)

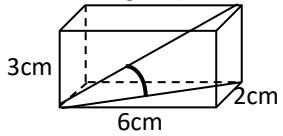
14. Estimate the distance travelled between 0 and 4 seconds. *11:16*



15. Write down the equation of the tangent at (3,4) on the circle $x^2+y^2 = 25$ *11:18*

C: Geometry & Measure & Statistics

21. Work out the marked angle x (correct to 3sf) *11:26*



x

22. $\frac{x}{\sin 38^0} = \frac{8cm}{\sin 60^0}$ Find x(correct to 1dp) *11:27*

23. $\cos x = \frac{4^2 + 7^2 - 9^2}{2x4x7}$ Find angle x(correct to 3sf) *11:28*

6. If $f(x) = 2x^2 - x$, work out f(3)

11:7

7. Find the turning point of:

$y = x^2 + 8x + 10$

11:8

8. Solve by completing the square:

$x^2 - 2x - 5 = 0$

(Write down the EXACT values)

11:9

9. To solve: $3x^2 - 5x + 1 = 0$ by formula, substitute the appropriate values.

11:10

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

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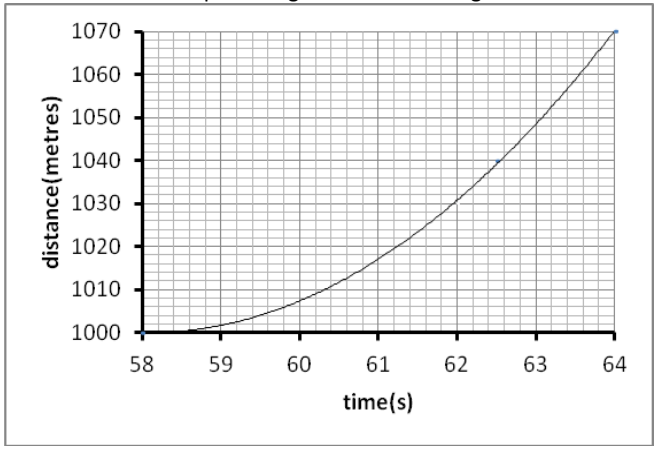
10. Write down the solution set for: $(x - 5)(x - 1) \geq 0$

11:11

16. Estimate & interpret the gradient of the tangent at 61seconds.

11:20

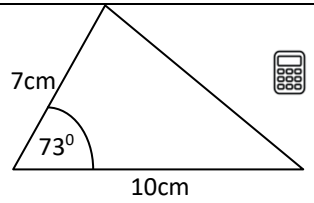


17. $x^2 + 3x + 5 = 0$ can be solved using the iteration formula: $x_{n+1} = \frac{5 - x_n^2}{3}$

Work out an approximation for x by using $x_1 = 1$

11:21

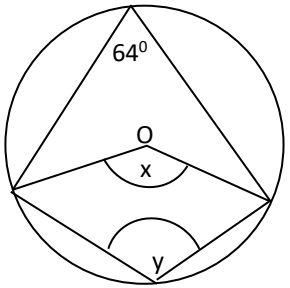
18. . Work out the area of this triangle.(3sf)



11:22

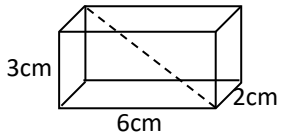
19. O is the centre.

Work out the values of x & y.



11:23

20. Work out the diagonal length of this cuboid.



11:24

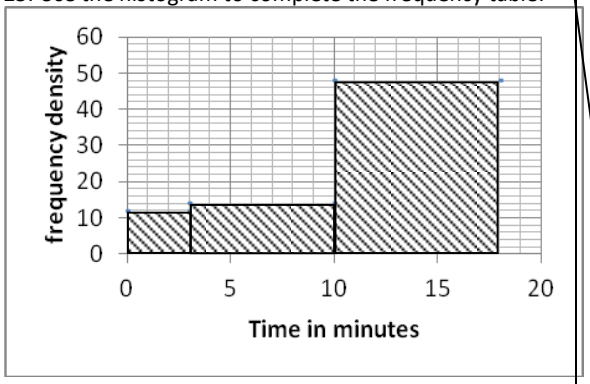
24. If $\overrightarrow{AB} = -\underline{\mathbf{a}} + \underline{\mathbf{b}}$ & $\overrightarrow{MN} = \frac{1}{2}(\underline{\mathbf{b}} - \underline{\mathbf{a}})$

What can you say about these two vectors?

11:29

25. Use the histogram to complete the frequency table:

11:30



Time	Frequency
$0 < t \leq 3$	
$3 < t \leq 10$	
$10 < t \leq 13$	

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