Maths Key Skills **Stage 11: Skill Check 10**

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

A: Number & Algebra

1. Write $8\sqrt{8}$ in the form $k\sqrt{2}$ *11:1*

2. Rationalise the denominator & simplify: *11:2*

$$\frac{4}{3\sqrt{2}}$$

3. If x=18 & y=12(both to nearest integer) Work out minimum value of **x ÷ y** *11:3*

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

$$\frac{2x^2+9x-5}{4x^2+20x}$$

5. Solve: *11:5*

$$\frac{3}{x+1} + \frac{1}{2x-1} = 2$$

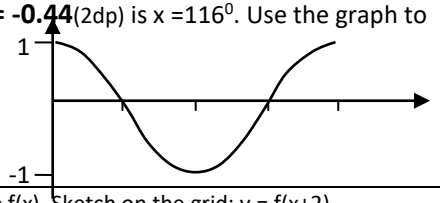
B: Algebra, Proportion, Geometry & Measure

11. Make (**b**) the new subject of : *11:12*

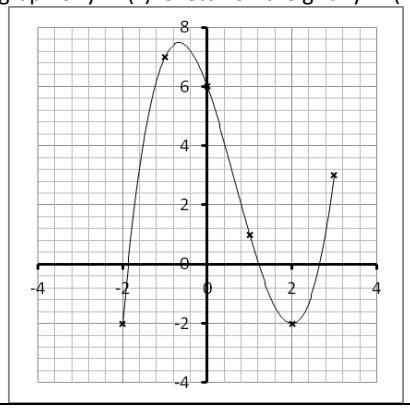
3(a+b)=5+7b

12. This is the graph of y = cosx *11:14*

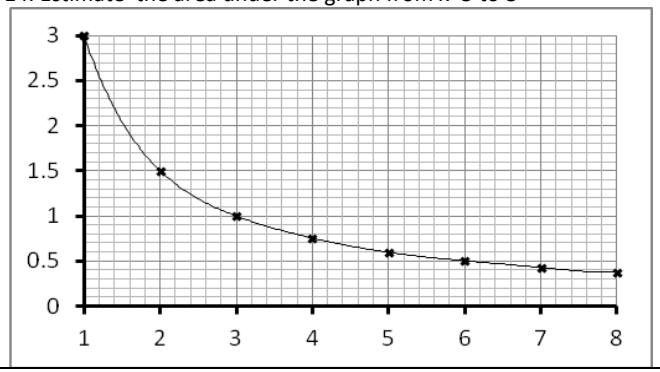
One solution for **cosx = -0.44**(2dp) is x =116^0. Use the graph to find another solution.



13. This is the graph of y = f(x). Sketch on the grid: y = f(x+2) *11:15*



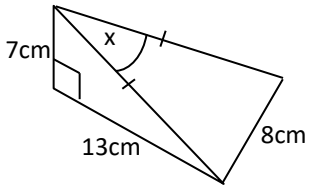
14. Estimate the area under the graph from x=5 to 8 *11:16*



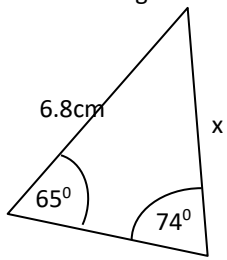
15. Write down the equation of the tangent at (3,-1) on the circle $x^2+y^2 = 10$ *11:18*

C: Geometry & Measure & Statistics

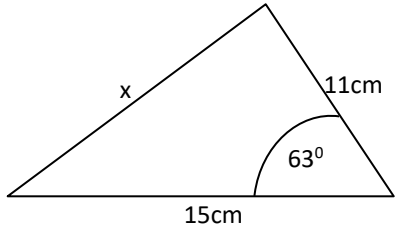
21. Work out the angle x (correct to 3sf) *11:26*



22. Find the length of the side 'x'? (1dp) *11:27*



23. Find the length of the side 'x'? (2sf) *11:28*



6. If $h(x) = x^2 - 2x + 3$
Work out: h(x+3)

11:7

7. Find the turning point of:
$y = x^2 - 4x - 7$

11:8

8. Solve by completing the square: $x^2 - 6x + 2 = 0$
(Write down the EXACT values)

11:9

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

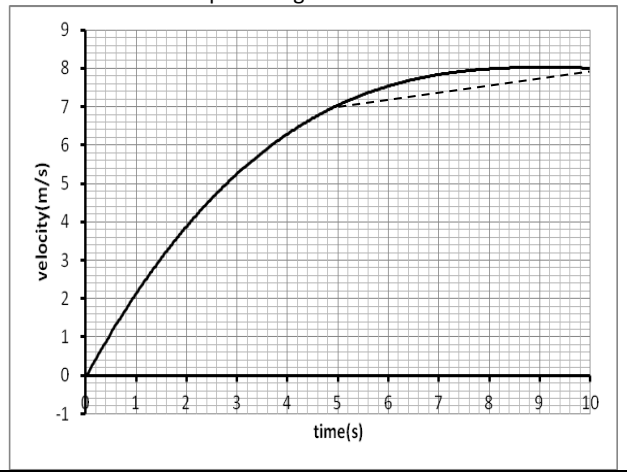
11:10

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

10. Write down the solution set for: $(2x-1)(x+3) < 0$

11:11

16. Estimate & interpret the gradient of the chord.



11:20

17. $x^2 - 3x - 8 = 0$ can be solved using the iteration formula:

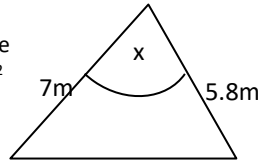
$x_{n+1} = \sqrt{3x_n + 8}$

Correct to 1dp

Start with $x_1 = 4$ & work out an approximation for x by finding x_5

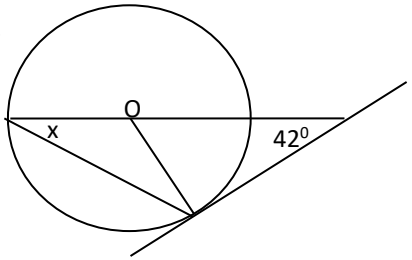
11:21

18. Work out the angle x of this triangle With an area of $16m^2$ (Correct to 2sf)



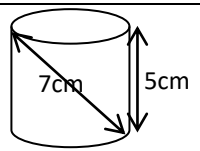
11:22

19. O is the centre.
Find the size of angle 'x'



11:23

20. Work out the diameter of this cylinder (1dp)



11:24

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

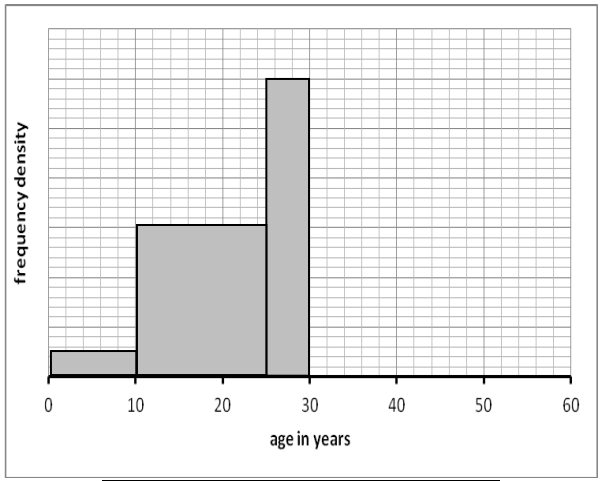
$\overrightarrow{CD} = 8\underline{a} - 6\underline{b}$

Show clearly that AB and CD are parallel

Working out

11:29

25. Complete the table & histogram :



Age(years)	Frequency
$0 < t \leq 10$	5
$10 < t \leq 25$	
$25 < t \leq 30$	30
$30 < t \leq 50$	70

11:30

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