

Solomon Practice Paper

Core Mathematics 1C

Time allowed: 90 minutes

Centre: www.CasperYC.club

Name:

Teacher:

Question	Points	Score
1	3	
2	4	
3	6	
4	6	
5	7	
6	7	
7	8	
8	8	
9	12	
10	14	
Total:	75	

How I can achieve better:

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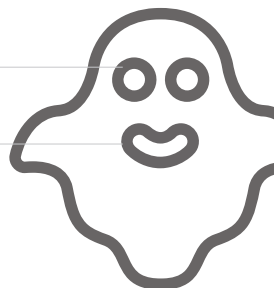


Last updated: July 14, 2025



[3]

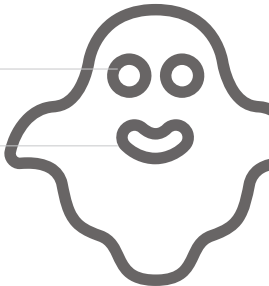
giving your answers in the form $a + b\sqrt{3}$ where a and b are integers.



2. Find the set of values of x for which

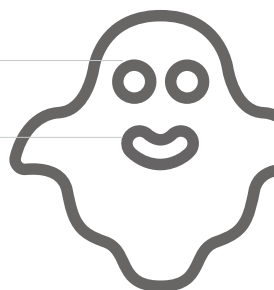
[4]

$$(x - 1)(x - 2) < 20.$$



[6]

find $f(x)$.

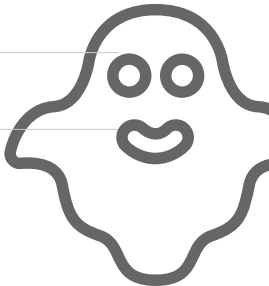


4. (a) Evaluate $\left(5\frac{4}{9}\right)^{-\frac{1}{2}}$ [2]
- (b) Find the value of x such that [4]

$$\frac{1+x}{x} = \sqrt{3},$$

giving your answer in the form $a + b\sqrt{3}$ where a and b are rational.

Total: 6

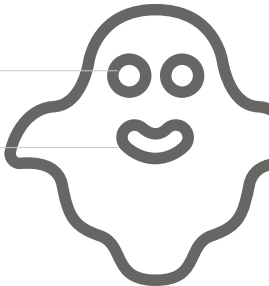


5. Given that

$$y = x + 5 + \frac{3}{\sqrt{x}},$$

- (a) find $\frac{dy}{dx}$, [3]
- (b) find $\int y \, dx$. [4]

Total: 7



6.

$$f(x) = x^{\frac{3}{2}} - 8x^{-\frac{1}{2}}$$

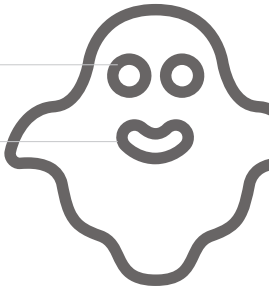
- (a) Evaluate $f(3)$, giving your answer in its simplest form with a rational denominator. [3]
- (b) Solve the equation $f(x) = 0$, giving your answers in the form $k\sqrt{2}$. [4]

Total: 7

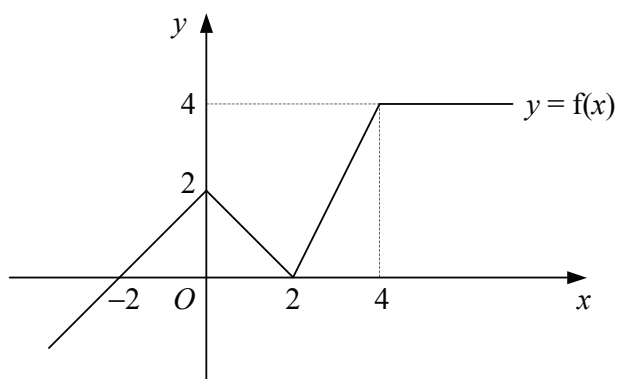


7. The straight line l_1 has gradient 2 and passes through the point with coordinates $(4, -5)$.
- (a) Find an equation for l_1 in the form $y = mx + c$. [2]
- The straight line l_2 is perpendicular to the line with equation $3x - y = 4$ and passes through the point with coordinates $(3, 0)$.
- (b) Find an equation for l_2 . [3]
- (c) Find the coordinates of the point where l_1 and l_2 intersect. [3]

Total: 8



8. Figure shows the graph of $y = f(x)$.



(a) Write down the number of solutions that exist for the equation

[2]

i. $f(x) = 1$,

ii. $f(x) = -x$.

(b) Labelling the axes in a similar way, sketch on separate diagrams the graphs of

[6]

i. $y = f(x - 2)$,

ii. $y = f(2x)$

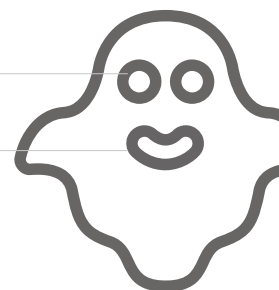
Total: 8



- $$\frac{1}{2}n[2a + (n-1)d].$$

Find, according to her plan,

- Total: 12



10. The curve C has the equation $y = f(x)$ where

$$f(x) = (x + 2)^3.$$

(a) Sketch the curve C , showing the coordinates of any points of intersection with the coordinate axes. [3]

(b) Find $f'(x)$. [4]

The straight line l is the tangent to C at the point $P(-1, 1)$.

(c) Find an equation for l . [3]

The straight line m is parallel to l and is also a tangent to C .

(d) Show that m has the equation $y = 3x + 8$. [4]

Total: 14

