



SEKOLAH BUKIT SION

IGCSE Mock Examination 2021

STUDENT
NAME

EXAMINEE
NUMBER

CENTRE
NUMBER

MATHEMATICS (PAPER 2)

Year 10/Year 11

08 April 2021

1 hour 30 minutes

Additional Materials:

- Scientific Calculator
- Ruler
- Graphing Paper

READ THESE INSTRUCTIONS FIRST

Write your name, exam number and grade on all the work you hand in.

Write in dark blue or black pen.

Use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

Answer **all** questions.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

The total of the marks for this paper is 70.

Score :

1 27 28 29 30 31 32 33

From the list of numbers, write down

(a) a multiple of 7,

Answer: [1]

(b) a cube number,

Answer: [1]

(c) a prime number

Answer: [1]

2 Factorise completely.

(a) $15p^2q^2 - 25q^2$

Answer: [2]

(b) $k^2 - 24k + 144$

Answer: [2]

(c) $4fg + 6gh + 10fk + 15hk$

Answer: [2]

3 $f(x) = x^3$ $g(x) = 5x + 2$

(a) Find $gf(x)$.

Answer: [1]

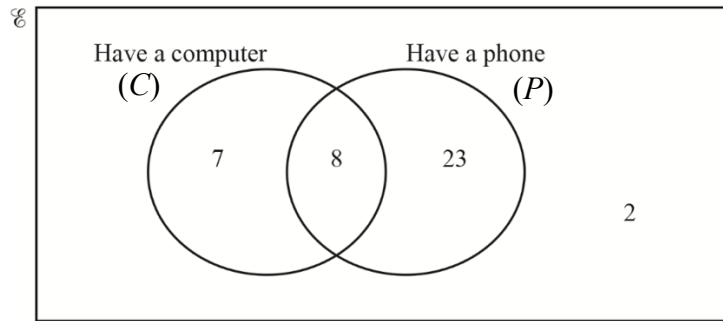
(b) Find $fg(x)$.

Answer: [1]

(c) Find $g^{-1}(x)$, the inverse of $g(x)$.

Answer: [2]

- 4 40 children were asked if they have a computer or a phone or both.
The Venn diagram shows the results.



- (a) A child is chosen at random from the children who have a computer.
Write down the probability that this child also has a phone.

Answer: [1]

- (b) Find $n((C \cap P)' \cap P)$.

Answer: [1]

- 5 A is the point $(7, 12)$ and B is the point $(2, -1)$.
Find the length of AB .

Answer: [3]

- 6 A cuboid has width 6 cm, height 9 cm and volume 675 cm^3 .

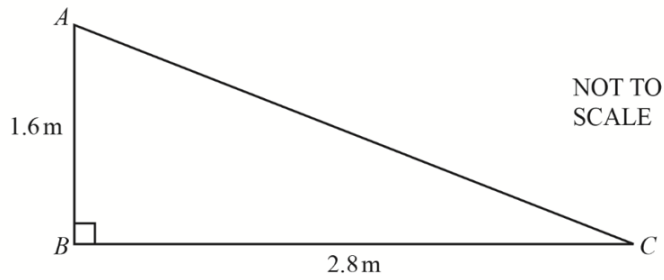
- (a) Calculate the length of this cuboid.

Answer: [2]

- (b) If water is poured into the cuboid at a rate of 25 cm^3 per minute,
how long, in hours, does it take to fill in the cuboid with water to the brim?

Answer: [3]

- 7 Find the area of triangle ABC .



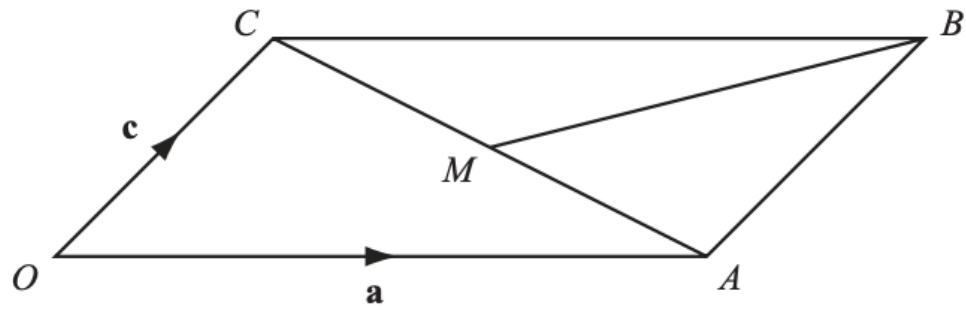
Answer: [2]

- 8 Write down the equation of the line perpendicular to the line $y = \frac{1}{2}x + 1$ and passes through the point $(1, 3)$.

Answer: [3]

- 9 Solve the equation $3x^2 - 2x - 10 = 0$.
Show all your working and give you answers correct to 2 decimal places.

Answer: [4]



$OACB$ is a parallelogram.

$\vec{OA} = \mathbf{a}$, $\vec{OC} = \mathbf{c}$ and M is the midpoint of CA .

Find in terms of \mathbf{a} and \mathbf{c}

(a) \vec{OB}

Answer: [1]

(b) \vec{CA}

Answer: [1]

(c) \vec{BM}

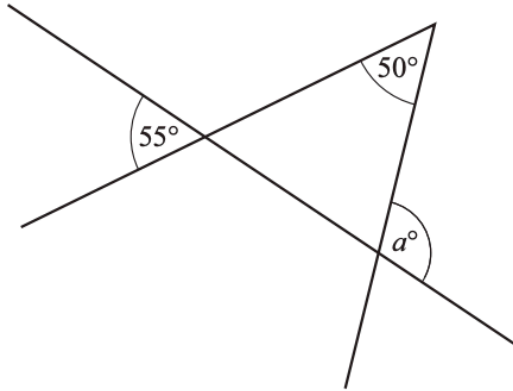
Answer: [2]

11 Minnie invests \$5720 at a rate of 2.5% per year compound interest.

Calculate the **total** amount Minnie has after 3 years.

Answer: [3]

12



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Use the information in the diagram to find the value of a .

Answer: [2]

13 Solve the inequality $6(2 - 3x) \leq 4(1 - 2x)$

Answer: [3]

14 In 2007, a tourist changed 5000 Chinese yuan into pounds (£) when the exchange rate was £1 = 14.925 Chinese yuan.

Calculate the amount he received, giving your answer correct to 2 decimal places.

Answer: [2]

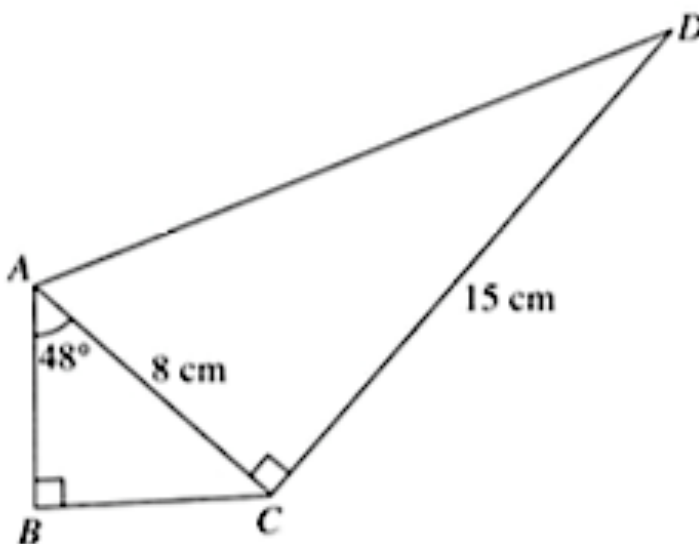
15 The first five terms of a sequence are shown below.

14 10 6 2 -2

Find the n th term of this sequence.

Answer: [2]

16 In the diagram, $\angle ABC$ and $\angle ACD$ are both right angles.
 $AC = 8$ cm and $CD = 15$ cm.



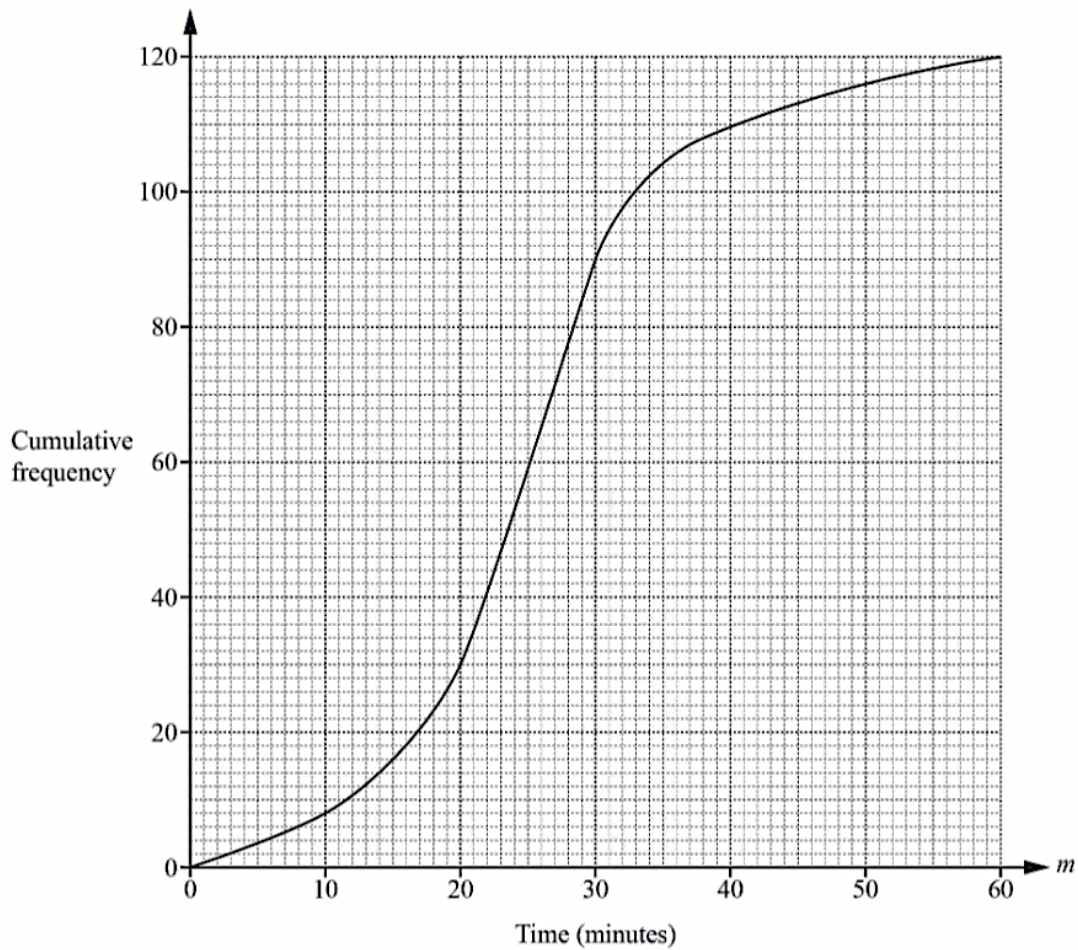
(a) Calculate the length of AD .

Answer: [1]

(b) Find the perimeter of quadrilateral $ABCD$.

Answer: [3]

- 17 The cumulative frequency diagram shows information about the time, m minutes, taken by 120 students to complete some homework.



Use the cumulative frequency diagram to find an estimate of

- (a) the median,

Answer: [1]

- (b) the interquartile range,

Answer: [2]

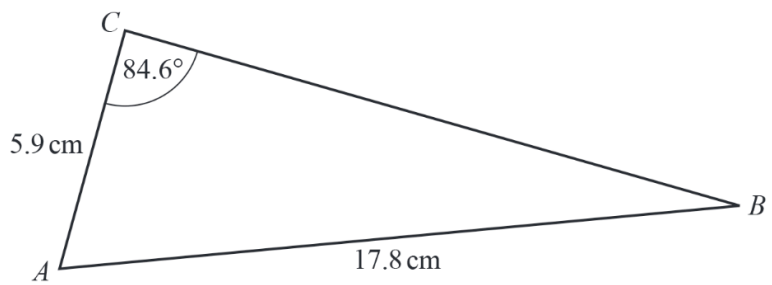
- (c) 90% percentile

Answer: [1]

- (d) the number of students who took more than 50 minutes to complete the homework.

Answer: [2]

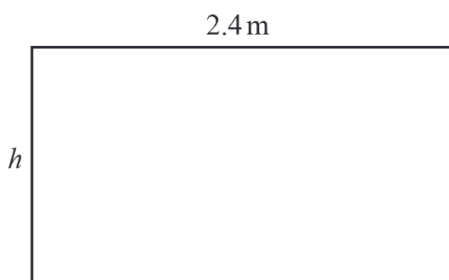
18 Find the area of triangle ABC .



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Answer: [4]

19 The two flags are mathematically similar.



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Calculate the height, h , of the second flag.

Answer: [2]

20 Write the following in order, smallest first.

$$\sqrt{0.1} \quad \frac{43}{210} \quad 2\frac{1}{2}\% \quad 0.2$$

Answer: [2]

21 Three people pick strawberries.
The strawberries are sold in boxes.

On Monday, they receive \$390 for their boxes of strawberries.
They share this money in the ratio of Alison : Bob : Jenny = 7 : 3 : 2.

Work out how much money they each receive.

Answer: Alison
Bob
Jenny [3]

22 The probability that Tommy has his calculator for his mathematics lesson is 0.4.
There are 120 mathematics lessons in one year.

Work out an estimate of the number of mathematics lessons in one year that Tommy has his calculator.

Answer: [1]

- END OF EXAMINATION -