

2018

YEAR 7
YEARLY
EXAMINATION

Mathematics

**General
Instructions**

- Working time - 75 minutes
- Write using black pen
- NESA approved calculators may be used
- In questions 21-26, show relevant mathematical reasoning and/or calculations

**Total marks:
50**

Section I – 20 marks

- Attempt Questions 1-20
- Allow about 30 minutes for this section

Section II – 30 marks

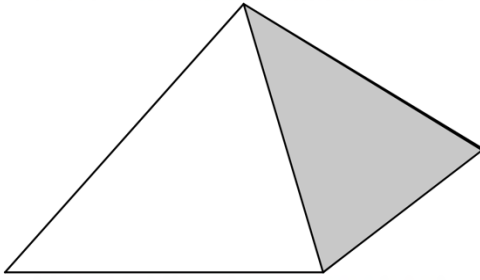
- Part A: Attempt questions 21-24
- Part B: Attempt questions 25-26 (Advanced)
- Allow about 45 minutes for this section

Section I**20 marks****Attempt questions 1 - 20****Allow about 30 minutes for this section**

Use the multiple-choice answer sheet for questions 1-20

1. Which number is ten less than ten thousand?
(A) 9090
(B) 9900
(C) 9909
(D) 9990
2. $-5 - (6 - -1)$ equals:
(A) -12
(B) -10
(C) 0
(D) 12
3. Which two numbers have a sum of 13 and a product of 42?
(A) 2 and 11
(B) 4 and 9
(C) 5 and 8
(D) 6 and 7
4. When $y = 3$, the value of $2y^2$?
(A) 6
(B) 12
(C) 18
(D) 36
5. A reflex angle measures between:
(A) 0° and 90°
(B) 90° and 270°
(C) 180° and 270°
(D) 180° and 360°

6.



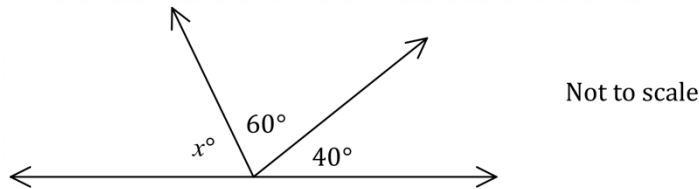
How many edges in a rectangular pyramid?

- (A) 6
 - (B) 7
 - (C) 8
 - (D) 9
7. What is the solution to the equation $x - 2 = 18$?
- (A) $x = 9$
 - (B) $x = 16$
 - (C) $x = 20$
 - (D) $x = 21$
8. Two-fifths of a number is 24. Which one is the number?
- (A) 40
 - (B) 50
 - (C) 60
 - (D) 80
9. The first prime number greater than 15 is:
- (A) 16
 - (B) 17
 - (C) 18
 - (D) 19
10. An event has the probability of occurring equal to 0.
What word can you use to describe this probability?
- (A) Certain
 - (B) Impossible
 - (C) Likely
 - (D) Unlikely

11. Elastic bands cost 60 cents per 100. How many elastic bands would \$30 buy?

- (A) 50
- (B) 500
- (C) 5000
- (D) 50 000

12.



What is the value of x ?

- (A) 50
- (B) 60
- (C) 70
- (D) 80

13. Which fraction is *not* equivalent to 0.05?

- (A) $\frac{5}{10}$
- (B) $\frac{5}{100}$
- (C) $\frac{1}{20}$
- (D) $\frac{50}{1000}$

14. When $2x$ is added to the sum of $3x$ and $5y$ then the result is:

- (A) $5x + 5y$
- (B) $3x + 10y$
- (C) $6x^2 + 5y$
- (D) $30 x^2 y$

15. There are four runners in a relay team. What is the average time for each runner, if the relay team completed the 400 metres in 45.84 seconds?

- (A) 11.21 seconds
- (B) 11.46 seconds
- (C) 11.50 seconds
- (D) 100 seconds

16. Five more than x , can be written as:

- (A) $5 > x$
- (B) $x < 5$
- (C) $5 - x$
- (D) $x + 5$

17. A water tank when half full holds 40 litres.

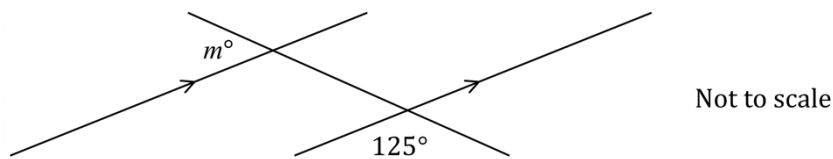
How much more water does it hold if it is three-quarters full?

- (A) 20 L
- (B) 25 L
- (C) 30 L
- (D) 60 L

18. What is the perimeter of a square with a side length of 4.2 cm?

- (A) 16.8 cm
- (B) 17.64 cm
- (C) 74.1 cm
- (D) None of these

19.



What is the value of m in the above diagram?

- (A) 45°
- (B) 55°
- (C) 65°
- (D) 125°

20. A bag contains 18 white, 10 red, 9 black and 13 blue balls. Without looking Amelia takes one ball from the bag. What is the chance the ball is red?

- (A) $\frac{1}{2}$
- (B) $\frac{1}{3}$
- (C) $\frac{1}{4}$
- (D) $\frac{1}{5}$

Section II Part A

20 marks

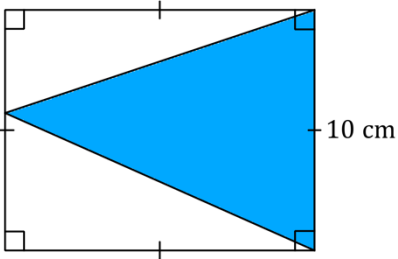
Attempt questions 21 - 24

Allow about 30 minutes for this section

Answer each question in the spaces provided.
Your responses should include relevant mathematical reasoning and/or calculations.

Question 21 (5 marks) Marks

- (a) Write 0.6 as a fraction in simplest form.
- (b) Simplify $15xy + 8x + 4y + 8xy$.
- (c) Convert 3.75 metres to centimetres.
- (d) Hannah obtained 90 out of 120 marks. What percentage was this?
- (e)



10 cm

Not to scale

A square of side length 10 cm, has a triangle removed.
Find the remaining *unshaded* area.

Question 22 (5 marks)

Marks

(a) Write the following in index form.

(i) $3 \times 3 \times 3 \times 3 \times 7 \times 7$

1

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(ii) $2 \times 2 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5$

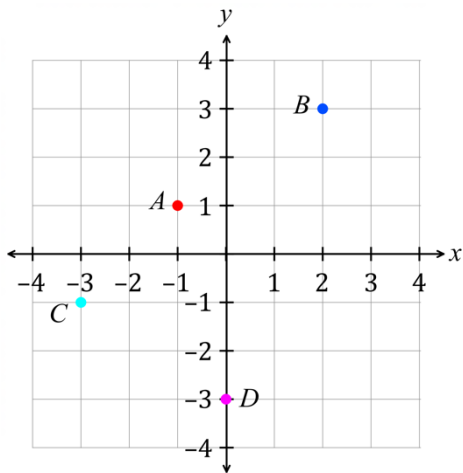
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(b)

2



What are the coordinates of points A, B, C and D?

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(c) Which is the best buy?

1

A: 750 g for \$5.20 or B 1 kg for \$6.88

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Question 23 (5 marks)

Marks

(a) For the following numbers: 5, 10, 4, 9, 5, 9, 10, 6, 7, 5.

(i) List the numbers in ascending order.

1

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(ii) Calculate the mean.

1

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(iii) Calculate the median.

1

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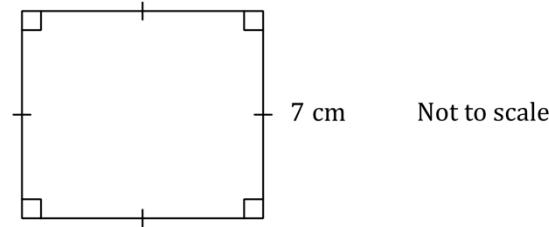
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(b) Find the area of the following shapes.

(i)

1



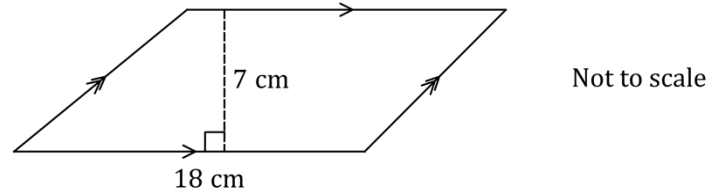
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(ii)

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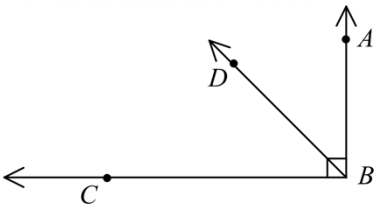
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Question 24 (5 marks)

Marks

(a)

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Name two complementary angles in the above diagram.

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(b) Solve $\frac{2m}{5} = 10$

1

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(c) A triangle with an area of 30 cm^2 has a base of length of 6 cm.
What is the height of the triangle?

1

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(d) Use the train timetable below to answer the following questions.

Stations					
Emu Plains	20:48	---	---	---	---
Penrith	20:52	20:45	20:58	21:15	21:28
Kingswood	---	20:48	21:02	21:18	21:32
Werrington	---	20:52	21:05	21:22	21:35
St Marys	---	20:55	21:08	21:25	21:38
Mount Druitt	---	20:59	21:12	21:29	21:42
Rooty Hill	---	21:02	21:15	21:32	21:45
Doonside	---	21:05	21:18	21:35	21:48

(i) A train leaves Penrith at 20:58. What is 20:58 in 12-hour time?

1

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(i) How long does the train leaving Kingswood at 20:48 take to get to Doonside?

1

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Section II Part B: Advanced

10 marks

Attempt questions 25 - 26

Allow about 15 minutes for this section

Answer each question in the spaces provided.
Your responses should include relevant mathematical reasoning and/or calculations.

Question 25 (5 marks) Marks

(a) The average of two numbers is 71. If one of the numbers is 87, what is the other number? 1

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(b) A computer is advertised for a cash price of \$1490 or 20% deposit then \$76.50 per month for 2 years. How much extra is paid by buying on terms? 1

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(c) The sum of 5 a number is 30. What is the number? 1

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(d) Jack has been given 28 m of fencing with which to build the largest rectangular enclosure that he can, using whole number side lengths.

(i) What are the dimensions of the rectangle that gives the largest possible area? 1

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(ii) Jack uses the dimensions in part (i) and puts a post on each corner, and then posts every metre along the boundary, how many posts will he need? 1

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Question 26 (5 marks)

Marks

- (a) Jenny’s flu prescription states: ‘Take two pills three times a day with food’. The bottle contains 48 pills. How many days will it take for the pills to run out?

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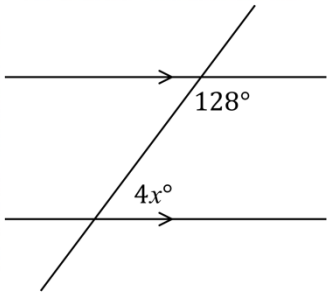
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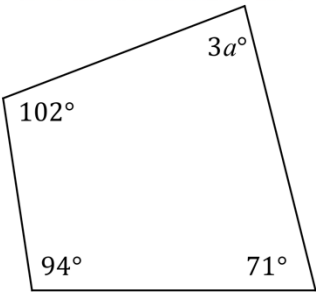
- (b) Find the value of the pronumeral.

2

(i)



(ii)



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- (c) A locksmith charges a call-out fee of \$80 and \$65 per hour.

- (i) Write an expression for the total cost, if the locksmith works h hours.

1

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- (ii) Use your expression to work out how many hours the locksmith worked for if he charged \$600 for a particular job.

1

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