

YEAR 8 MATHEMATICS
EXAMINATION - SEMESTER 2, 2015



KINROSS
COLLEGE

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WRITTEN QUESTION AND ANSWER BOOKLET

STUDENT'S NAME:
TEACHER'S NAME:
DATE:

TIME ALLOWED FOR THIS PAPER:

Reading time **before** commencing work: 10 minutes
Working time for this paper: 1 hour & 30 minutes

MATERIAL REQUIRED / RECOMMENDED FOR THIS PAPER:

To be provided by the supervisor

- This question and answer booklet

To be provided by the candidate

- Pens, pencils, eraser and / or correction fluid
- Up to two scientific calculators.
- Written notes on **one** unfolded A4 sized paper; can be double-sided

IMPORTANT NOTE TO CANDIDATES:

No other items may be taken into the examination room.

It is your responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **BEFORE** reading any further. All iPads and mobile phones must be turned off and in your bag along with any other devices and notes. Bags are to be closed and placed under the desk.

INSTRUCTION TO CANDIDATES:

1. **Read** through the paper to familiarise yourself with all of the questions.
2. Use a **blue or black** ballpoint / ink pen. Do not answer in pencil.
3. **Write** your answers in this booklet.

AT THE END OF THE EXAMINATION:

- Any planning sheets or other pieces of paper **MUST** be handed in with this booklet.
- At the end of the examination make sure that your name is on your booklet and any other pieces of paper used.

Structure of this paper

TOTAL QUESTIONS: 54

TOTAL MARKS: 65

<p><u>Section 1:</u> <i>Non-Calculator</i> 28 questions, 34 marks Attempt questions 1 - 28</p>	<p><u>Section 2:</u> <i>Calculator</i> 26 questions, 31 marks Attempt questions 1 - 26</p>
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Instructions to candidates

1. Sitting this examination implies that you agree to abide by the examination rules set down by Kinross College.
2. Answer the questions in the space provided.
3. You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.
4. A Spare page is included at the end of this booklet. It can be used for planning your responses and/or as additional space if required to continue an answer.
 - (a) Planning: If you use the spare page for planning, indicate this clearly at the top of the page. If you choose to use lined paper for planning, ensure your name and the title is clearly printed.
 - (b) Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question (s) that you are continuing to answer at the top of the page.
5. This examination contributes towards your grade and will be in your report. If you have any questions, please ask them during the ten-minute reading time.
6. Manage your time wisely. Always provide substantiation (evidence). Make sure that what you have written makes sense.

Note: Do not turn the page until you are asked to do so.

Section 1: NON-CALCULATOR (Total 28 Marks)

1 What fraction has the same value as $2\frac{3}{8}$?

$\frac{16}{8}$

$\frac{17}{8}$

$\frac{19}{8}$

$\frac{22}{8}$

2 Which metric unit would be used to measure the volume of concrete in a truck like this?

- cubic metres
- square metres
- cubic centimetres
- square centimetres



3 Estimate the value of $\frac{71.999 + 27.99}{13.1 - 3}$ correct to the nearest whole number.

8

9

10

11

4 Which of the following mathematical statements is true?

$30 - 4 \times 2 + 6 = 16$

$30 - 4 \times 2 + 6 = 28$

$30 - 4 \times 2 + 6 = 138$

$30 - 4 \times 2 + 6 = 48$

-
- 5 The population of the Quokkas on Rottnest is approximately 12,000
If the population decreases by 10%, how many Quokkas will be left on Rottnest?

120



1,200



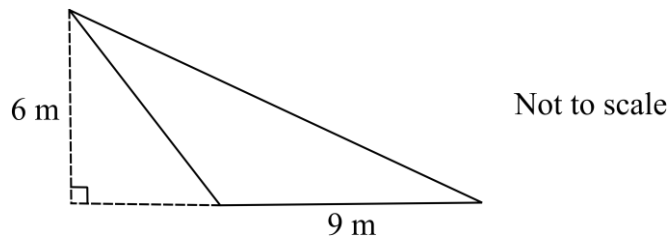
1,080



10,800



-
- 6 What is the area of this triangle?



15 m^2



27 m^2



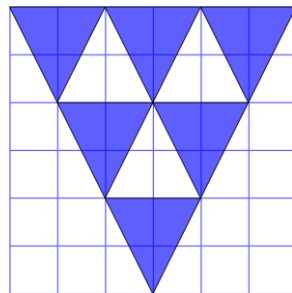
36 m^2



54 m^2



-
- 7 What fraction of the grid below is shaded?



$\frac{1}{4}$



$\frac{1}{3}$



$\frac{1}{2}$



$\frac{2}{3}$



- 8 A phone survey of 100 people found that eight people would *not* participate in the survey. What is the probability that a person chosen at random would participate in the survey?

$$\frac{1}{100}$$

$$\frac{2}{25}$$

$$\frac{23}{25}$$

$$1$$

- 9 Gemma had \$64 to spend while on holiday. She spent exactly the same amount each day. At the end of the holiday she had no money left. Which of these could be the amount she spent each day?

$$\$12$$

$$\$9$$

$$\$8$$

$$\$6$$

- 10 What number is halfway between -4 and 6 ?

$$-5$$

$$-1$$

$$1$$

$$2$$

- 11 A jug contains 1.5 L of milk. Eden adds an extra 150 mL of milk to the jug.

How many millilitres of milk are now in the jug?



12 Given $x=4$ and $y=-3$, evaluate $\frac{2xy}{x+y}$.

-24



$-\frac{24}{7}$



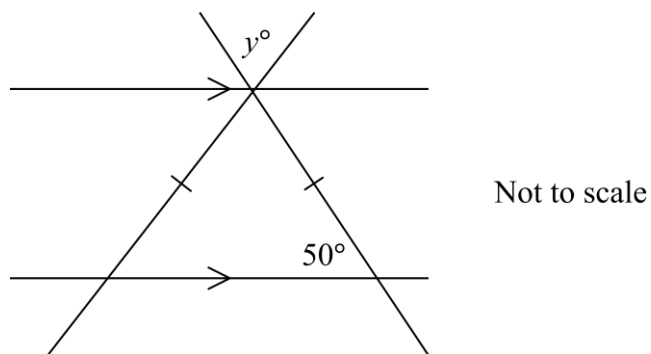
$\frac{24}{7}$



24



13 What is the value of y in the diagram?



50°



65°



80°



100°



14 This table is a training schedule for a running group.

Week number	1	2	3	4
Daily distance	4 km	5 km	7 km	?

The daily distance increases from week to week. It follows the rule:

'Double the previous week's daily distance and subtract 3 km'

What is the daily distance for week 4?

8 km



9 km



11 km



17 km



15 A signal at a pedestrian crossing stays red for 35 seconds. It then changes to green for 15 seconds. What is the probability it will be green when a person approaches the crossing?

0.3



0.4



0.5



0.6



16 Which of the following will simplify to 5?

$$\sqrt{13^2 - 12^2}$$



$$200 \div 20 \times 2$$



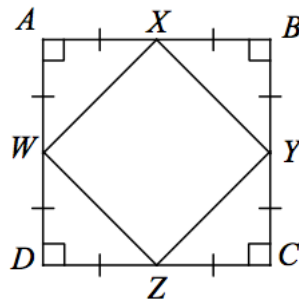
$$(5 - 2)^2$$



$$15 \div 2 + 1$$



17 Two squares $ABCD$ and $WXYZ$ are shown below.



Which of the following statements is true?

- Area of $WXYZ$ is quarter the area of $ABCD$.
 - Area of $WXYZ$ is half the area of $ABCD$.
 - Area of $WXYZ$ is twice the area of $ABCD$.
 - Area of $WXYZ$ is four times the area of $ABCD$.
-

18 What is the answer to $8.8 \div 0.4$?

0.022

0.22

2.2

22

19 A football and a shirt together cost \$120. If the cost of the football is \$48 more than the shirt, what was the cost of the football?

\$36

\$48

\$84

\$96

20 Kayla bought 8 boxes of pencils. In total this was 96 pencils.

Which equation correctly shows n as the average number of pencils in each box?

$96 \times 8 = n$

$96 - 8 = n$

$n \div 8 = 96$

$n \times 8 = 96$

21 A bus ticket costs \$16. After a price rise the same ticket costs \$20.

What percentage increase was the price rise on the original cost?

20%

25%

75%

80%

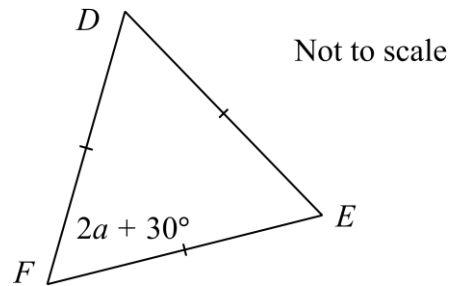
22 The fraction $\frac{x+5}{7}$ has a value between 1 and 2, where x is a whole number.

What is a possible value for x ?

23 **DEF** is an equilateral triangle.

$$\angle DFE = 2x + 30^\circ.$$

What is the value of a ?



24 The product of the consecutive even numbers 8, 10 and 12 is 960.

Find three consecutive even numbers with a product of 480.

25 Austin thinks of a number x . He multiplies the number by itself, halves this answer and then subtracts 3. Which expression shows what Austin did?

$$\frac{2x-3}{2}$$



$$\frac{2x}{2} - 3$$



$$\frac{x^2-3}{2}$$



$$\frac{x^2}{2} - 3$$



26 Christian's mass was 90 kg. In the past six months his mass decreased by 10% and then increased by 10%. What is Christian's current mass?

81 kg



89.1 kg



89.5 kg



90 kg

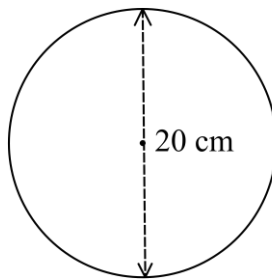


27 What is the value of x in this equation?

$$5x - 2 = 2x + 16$$

28 What is the circumference (to the nearest centimetre) of the following circle?

$$\text{Pi} \approx 3.14$$



Not to scale

END OF SECTION ONE

PROCEED TO SECTION TWO

Section 2: CALCULATOR (Total 26 Marks)

1. Joseph spent yesterday in Hobart. The temperature at 5 am was -1°C . Between 5 am and 5 pm the temperature rose by 9°C and then fell by 12°C . What was the temperature at 5 pm?

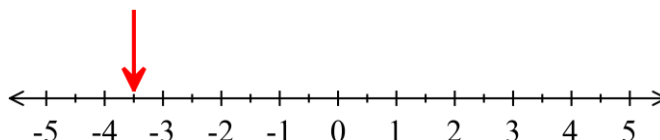
-18°C

-4°C

2°C

16°C

2. The arrow points to a position on the number line.



What number is at this position?

3. The sum of two angles makes a straight angle. One of these angles is an acute angle. What must the other angle be?

an acute angle

a right angle

an obtuse angle

a reflex angle

4. Anthony wants to put wallpaper on the lounge room walls. What information will best help him decide how much wallpaper to buy?

Volume of the room.

Perimeter of all the walls.

Capacity of the room.

Area of all the walls.

5. Which expression is always equal to $4x+8+5x+7$?

$24x$



$9x+15$



$20x+15$



$45x+87$



6. Jade's home repayments increased from \$972.22 to \$994.24 per fortnight.
How much extra will Jade repay each year?

\$22.02



\$154.14



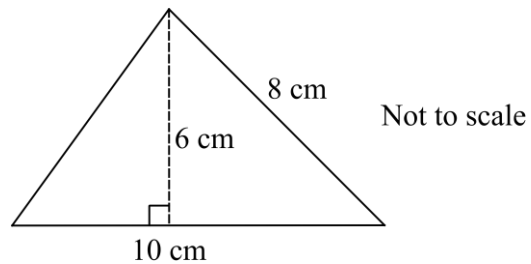
\$572.52



\$1145.04



7. What is the area of this triangle?



- 24 cm^2
- 30 cm^2
- 60 cm^2
- 80 cm^2

8. Which of these are *not* the same length?

- the opposite sides of a square.
- the opposite sides of a rectangle.
- the adjacent sides of a square.
- the adjacent sides of a rectangle.

9. The selling price of olive oil is $2\frac{1}{2}$ times the wholesale price. The selling price is \$16.



What is the wholesale price of the olive oil?

- \$6.40 \$13.50 \$18.50 \$40.00

-
10. Between which two consecutive numbers does $\sqrt{68}$ lie?

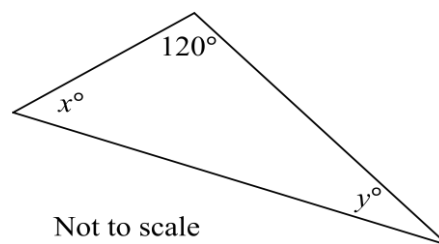
- 5 and 6 6 and 7 7 and 8 8 and 9

-
11. Which of these percentages is closest in value to $\frac{8}{9}$?

- 87% 88% 89% 90%

-
12. What are the possible values for x and y in the triangle below?

- $x = 40$ and $y = 20$
 $x = 60$ and $y = 0$
 $x = 60$ and $y = 60$
 $x = 70$ and $y = 20$



-
13. A courier charges \$6 per kilometre to deliver parcels in the city.

Billie was charged \$84 by this courier.

If the courier took 35 minutes to make the delivery, what was their average speed?

Answer correct to the nearest km/h.

14. Rose takes 112 paces to walk across the school yard. Her pace is 70 centimetres.
Alex's pace is 80 centimetres.

How many paces does Alex take to walk across the school yard?

- 90 98 102 128
-

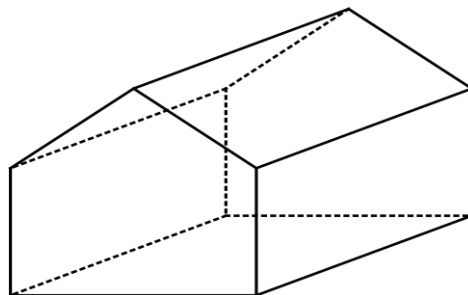
15. A bag contains 50 coloured marbles.
This table shows how many marbles of each colour are in the bag.

Colour	Blue	Green	Orange	Red	Yellow
Number	5	10	20	10	5

One marble is picked at random from the bag.
What is the probability of the marble being blue or green?

- 0.1 0.15 0.2 0.3
-

16. How many edges has the following solid?



- 6 10 12 15
-

17. $33\frac{1}{3}\%$ of 90 is equal to:

3

27

30

33

18. The diameter of a circular table is 5.2 metres.
What is the circumference of the table to the nearest metre?

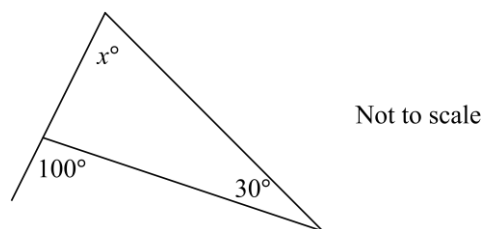
8 m

10 m

16 m

32 m

19. What is the value of x ?



30°

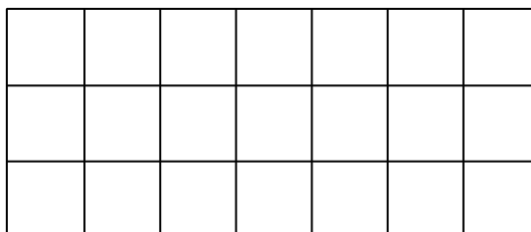
50°

70°

100°

20.

How many squares must be shaded so that six-sevenths of the rectangle is shaded?



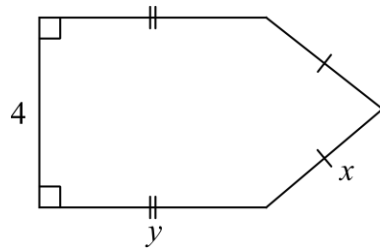
6

14

16

18

21. Find an expression for the perimeter of the shape below.



Not to scale

$4xy$

$x + y + 4$

$2x + 2y + 4$

$2xy + 4$

22. The diagram shows the length and width of a large TV screen.

What is the area of the TV screen?

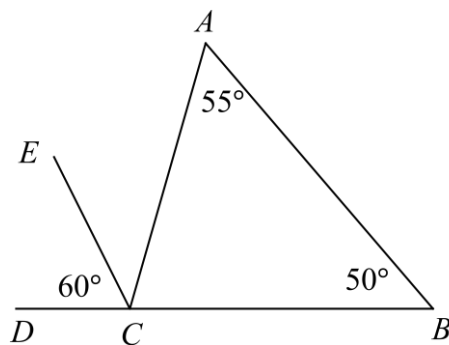


55.5 cm

93.5 cm

- 72 square centimetres
- 298 square centimetres
- 2594.625 square centimetres
- 5189.25 square centimetres

23. In the diagram, BCD is a straight line.



Not to scale

What is the size of angle ACE ?

24. A coin can land on a head or tail when tossed.

What are the chances of getting two heads when two coins are tossed?

$\frac{1}{4}$

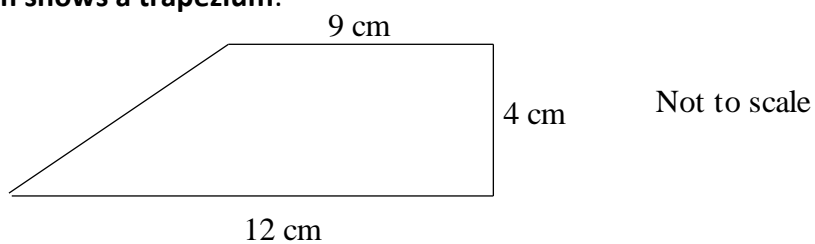
$\frac{1}{3}$

$\frac{1}{2}$

2

25. $100 = 900 - x$. What is the value of x ?

26. This diagram shows a trapezium.



What is the AREA of the trapezium?

END OF SECTION TWO

END OF EXAMINATION