

## 2022 Year 9 Topic Tests Information Sheet

**2022 Year 9 Topic Tests** is a set of short answer questions and their solutions.

The topics covered are:

- Computation and Financial Mathematics (3 questions)
- Indices and Numbers of Any Magnitude (3 questions)
- Algebraic Techniques and Equations (3 questions)
- Linear Relationships (3 questions)
- Area, Surface Area and Volume (3 questions)
- Right-Angled Triangles (3 questions)
- Bearing and Similarity (2 questions)
- Probability (3 questions)
- Statistics (3 questions)

**2022 Year 9 Topic Tests** also includes a **Mid-year test** that consists of:

- 15 multiple choice questions
- 5 short answer questions
- 2 extended response questions

### **Distribution**

Electronic copies will be emailed to you

### **File format**

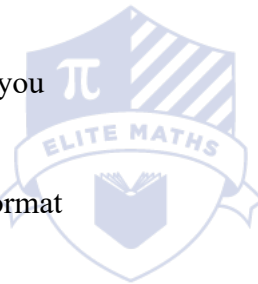
MS Word DOCX format and PDF format

### **Release date**

1st of March 2022

### **Pricing**

\$105



**2022 Year 9 Mathematics  
Computation and Financial Mathematics Test**

**Time allowed: 1 hour  
Total marks: 30 marks**

**Question 1 (9 marks)**

- a. Write  $5\frac{1}{2}$  as an improper fraction. 1 mark

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- b. Evaluate  $6.24 \times 2$ . 1 mark

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- c. Evaluate  $\frac{2}{3} \div 6$ . 2 marks

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- d. Evaluate  $\sqrt{45}$  correct to two decimal places. 1 mark

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- e. The value of a car, originally purchased for \$15,200, has depreciated by 12%.  
Calculate the reduced value of the car. 2 marks

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- f. Students can study only one language at a school. 2 marks  
Out of the 68 students at the school, one quarter study French. Of those who do not study French,  
one third study German and the rest study Italian.  
Find the number of students who study Italian.

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**Question 2** (10 marks)

**a.** 2 marks  
 $\$65,650 - \$64,450$  (A1)  
 $= \$1,200$  (A1)

**b.** 3 marks  
 $\$5,092 + 0.325 \times (\$64,450 - \$45,000)$  (A1)  $\times 2$   
 $= \$11,413.25$  (A1)

**c.** 2 marks  
 $\$64,450 \times \frac{2}{100}$  (A1)  
 $= \$1,289$  (A1)

**d.** 3 marks  
 $(\$11,413.25 + \$1,289) - \$13,200.50$  (A1)  
 $= -\$498.25$  (A1)

- The order of subtraction does not matter.

Adam's tax refund is \$498.25. (A1)

**2022 Year 9 Mathematics**  
**Indices and Numbers of Any Magnitude Test**

**Time allowed: 1 hour**  
**Total marks: 30 marks**

**Question 1 (8 marks)**

- a.** Write down the next consecutive integer after  $n - 2$ , where  $n$  is an integer. 1 mark

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- b.** If  $p = 2$  and  $q = -3$ , evaluate  $p \times (p + q)^2$ . 2 marks

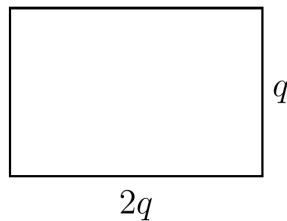
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- c.** Evaluate  $10^0$ . 1 mark

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- d.** 2 marks



Find the area of the rectangle above in terms of  $q$ .  
Simplify your answer.

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- e.** If  $k$  is any positive integer, write an expression in terms of  $k$  that represents an even number. 1 mark

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- f.** Write  $z^3$  in expanded form. 1 mark

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**Question 2** (14 marks)**a.** Write  $5^{-3}$  using a positive index.

2 marks

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**b.** Simplify  $x^2 \times x^4$ .

2 marks

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**c.** Simplify  $ab^5 \div (ab^4)$ .

2 marks

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**d.** It is given that  $(2w^3)^2 = 4w^n$  for all  $w$ .**i.** Find the value of  $n$ .  
Show all working.

2 marks

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**ii.** What type of number is  $n$ ?  
Circle the correct answer(s).

2 marks

integer

rational number

real number

**e.** Simplify  $\frac{48e^5f^2}{4e^2f}$ .

2 marks

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**f.** Simplify  $z^2(4z^4 - 2z^4)$ .

2 marks

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**Question 3** (8 marks)

**a.** 1 mark  
 $0.000043 = 4.3 \times 10^{-5}$  (A1)

**b.** 2 marks  
 $\frac{3.4 \times 10^5}{1.7 \times 10^2}$  (A1)  
 $= 2,000$  (A1)

• Accept  $2.0 \times 10^3$  as the final answer.

**c.** 2 marks  
 $\frac{891000}{330}$  (A1)  
 $= 2.7 \times 10^3$  seconds (A1)

**d.** 3 marks  
 The area of the magic rectangle at 8:24 am is  
 $18 \times 10^{24} = 1.8 \times 10^{25}$  (A1)

Let the width and length be  $a$  and  $2a$  respectively.

$$a \times 2a = 1.8 \times 10^{25} \quad (\text{A1})$$

$$a^2 = 9.0 \times 10^{24}$$

$$a = 3.0 \times 10^{12} \text{ cm} \quad (\text{A1})$$

**2022 Year 9 Mathematics**  
**Algebraic Techniques and Equations Test**

**Time allowed: 1 hour**  
**Total marks: 25 marks**

**Question 1** (10 marks)

- a.** Simplify  $(2b)^{-2}$ . 2 marks  
Write your answer using positive indices only.

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- b.** Simplify  $9xy \div (3xy)^3$ . 2 marks  
Write your answer using positive indices only.

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- c.** Simplify  $3s - 2s + 3s^2 - 6s^2$ . 2 marks

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- d.** Factorise  $2pq - 12p^2q$ . 2 marks

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- e.** Expand and simplify  $(-2 + x)(x + 2)$ . 2 marks

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**Question 3** (7 marks)

a. A bakery sells croissants for \$5 each and doughnuts for \$3 each.

Elly bought some croissants and doughnuts for \$46.

She bought 10 items in total.

Let  $c$  be the number of croissants bought and  $d$  be the number of doughnuts bought.

One equation that can be formed using the above information is  $c + d = 10$ .

i. Write the other equation in terms of  $c$  and  $d$ .

1 mark

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ii. Solve the set of simultaneous equations to find how many croissants Elly bought.

3 marks

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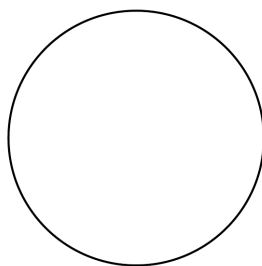
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b.

3 marks



The circumference of the circle above is  $\frac{\pi a}{4}$ .

Find a simplified expression for the area of the circle in terms of  $\pi$  and  $a$ .

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**Question 2** (8 marks)**a.** 2 marks

Line 3. (A1)

The correct line is  $x = -2$ . (A1)**b.** 2 marks

$$10 \times \left( \frac{y}{2} + \frac{y}{5} \right) = 10 \times 7$$

$$5y + 2y = 70 \quad (\text{A1})$$

$$7y = 70$$

$$y = 10 \quad (\text{A1})$$

- Accept other valid methods such as writing the LHS as a single fraction.

**c.** 2 marks

$$n = 1 \quad (\text{A1})$$

$$n = -1 \quad (\text{A1})$$

**d.** 2 marks

$$P = \sqrt{k^2 + m^2}$$

$$= \sqrt{5.88^2 + 7.84^2} \quad (\text{A1})$$

$$= \sqrt{96.04}$$

$$= 9.8 \quad (\text{A1})$$

**2022 Year 9 Mathematics  
Linear Relationships Test**

**Time allowed: 1 hour  
Total marks: 25 marks**

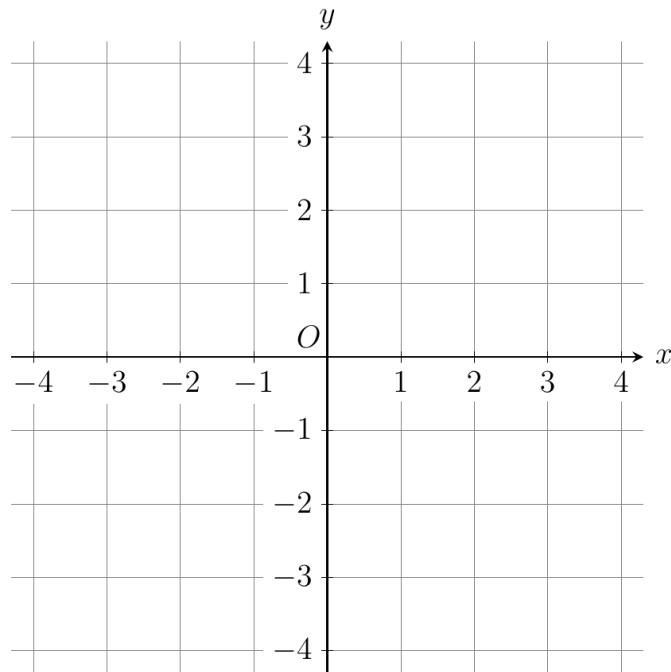
**Question 1 (10 marks)**

**a.** Write down the gradient of the line with equation  $y = 2x + 5$ .

1 mark

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**b.**



**i.** Sketch the graph of  $y = -2x + 1$  on the set of axes above.

2 marks

**ii.** For the above equation, find the value of  $y$  when  $x = -4$ .

2 marks

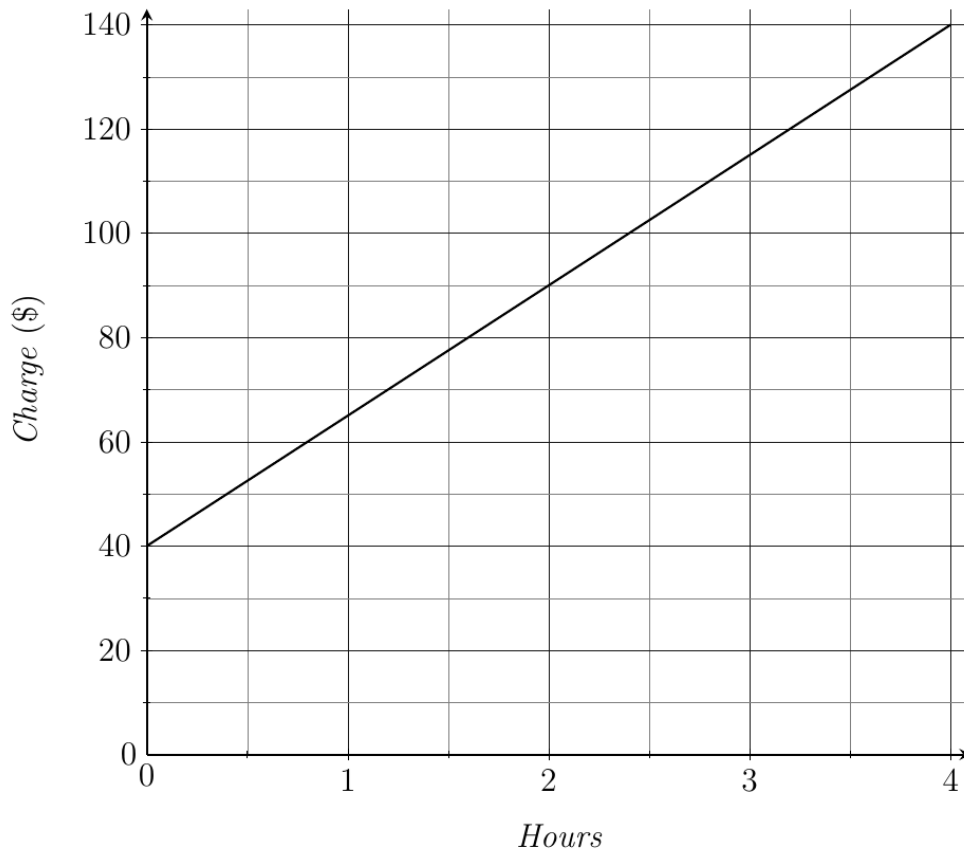
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**Question 3** (5 marks)

A plumber charges an upfront fee and an hourly charge.

The graph below shows this information.



- a. Complete the following sentence by writing down the appropriate words or numbers. 2 marks

The plumber charges an upfront fee of \$\_\_\_\_\_ and an hourly charge of \$\_\_\_\_\_.

- b. Explain how you can tell from the graph that the total charge would be higher for a greater number of hours worked by the plumber. 1 mark

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- c. Find how many hours the plumber worked if they charged a customer \$100. 2 marks

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**2022 Year 9 Mathematics**  
**Linear Relationships Test**  
**Total marks: 25 marks**

**Question 1 (10 marks)**

**a.**

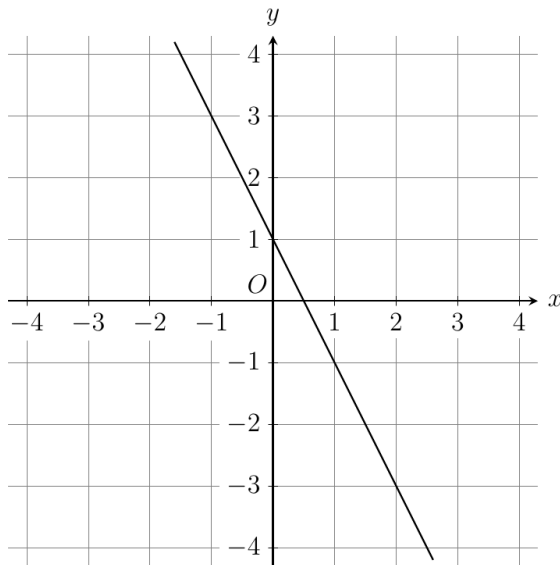
2 (A1)

1 mark

**b.**

**i.**

2 marks



- A line with a negative gradient is sketched. (A1)
- The sketched line passes through all correct integer-valued points. (A1)

**ii.**

$$y = -2 \times (-4) + 1 \quad (\text{A1})$$

$$= 9 \quad (\text{A1})$$

2 marks

**c.**

$$y = 4 - 2 = 2 \quad (\text{A1})$$

Since  $2 \neq 3$ , the point  $(2, 3)$  does not lie on the line. (A1)

2 marks

**d.**

$$y = 4 \quad (\text{A1})$$

1 mark

**e.**

$$2x + 3y = 6 \text{ can be written as } y = -\frac{2}{3}x + 2.$$

2 marks

The gradient is  $-\frac{2}{3}$ . (A1)

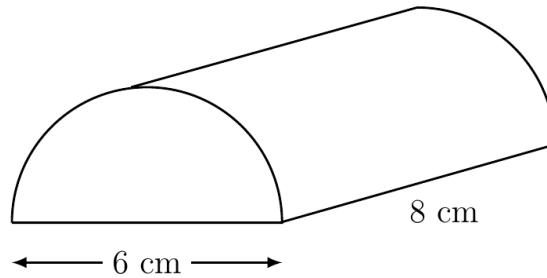
The  $x$ -intercept is 3. (A1)

**2022 Year 9 Mathematics**  
**Area, Surface Area and Volume Test**

**Time allowed: 1 hour**  
**Total marks: 25 marks**

**Question 1** (11 marks)

Consider the prism shown below.



- a.** Show that the cross-sectional area of the prism is  $4.5\pi \text{ cm}^2$ . 1 mark

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- b.** Find the volume of the prism. 2 marks  
Round your answer to one decimal place.

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- c.** Complete the following sentence by writing down the appropriate number or word. 1 mark

The curved side of the prism can be treated as a \_\_\_\_\_ when calculating the surface area.

- d.** Find the surface area of the prism, excluding the base face. 2 marks

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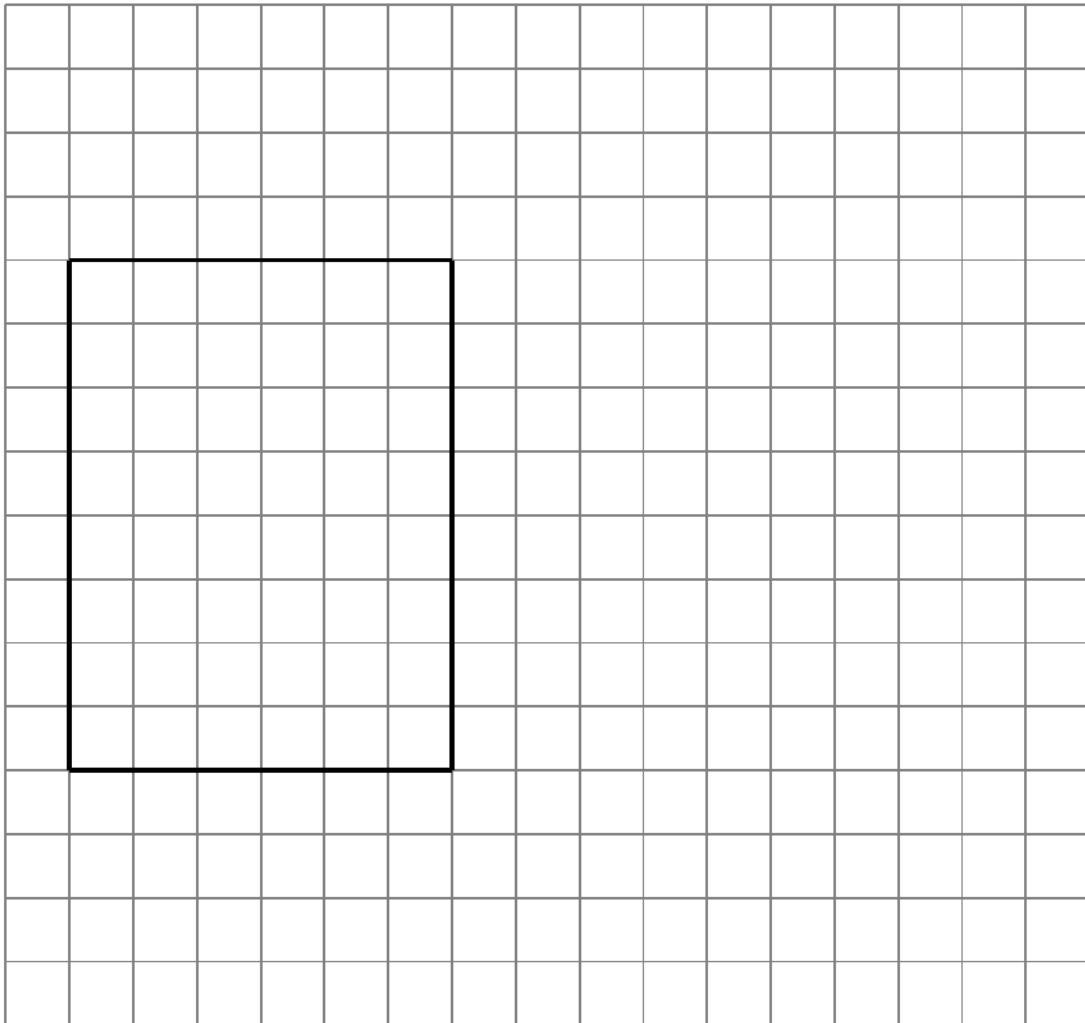
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- e. On the grid of centimetre squares below, complete the net of the prism.  
The base face has been drawn for you.

3 marks



- f. Suppose that the net of the prism is cut out from a thin rectangular sheet measuring 16 cm by 17 cm. Find the area of the remaining part of the rectangular sheet. Round your answer to the nearest whole number.

2 marks

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**2022 Year 9 Mathematics**  
**Area, Surface Area and Volume Test**  
**Total marks: 25 marks****Question 1** (11 marks)**a.** 1 mark

$$\frac{1}{2} \times \pi \times \left(\frac{6}{2}\right)^2 = \frac{1}{2} \times \pi \times 9$$
$$= 4.5\pi \text{ cm}^2$$

• Correct working is shown. (A1)

**b.** 2 marks

The volume of the prism is

$$4.5\pi \times 8 \text{ (A1)}$$

$$\approx 113.1 \text{ cm}^3 \text{ (A1)}$$

**c.** 1 mark

rectangle (A1)

**d.** 2 marks

The surface area of the prism is

$$2 \times 4.5\pi + \frac{1}{2} \times 2 \times \pi \times 3 \times 8 \text{ (A1)}$$

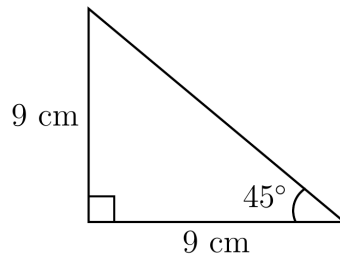
$$\approx 103.7 \text{ cm}^2 \text{ (A1)}$$

**2022 Year 9 Mathematics  
Right-angled Triangles Test**

**Time allowed: 1 hour  
Total marks: 20 marks**

**Question 1 (7 marks)**

Consider the right-angled triangle shown below.



- a. Write down the length of the adjacent to angle  $45^\circ$ . 1 mark

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- b. Use the triangle above to find the value of  $\tan(45^\circ)$ . 2 marks

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- c. Use Pythagoras' theorem to show that the length of the hypotenuse is  $\sqrt{162}$  cm. 2 marks

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- d. Find the exact value of  $\cos(45^\circ)$ . 1 mark

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- e. What kind of triangle is the one shown above? 1 mark  
Circle the correct answer.

Equilateral triangle

Isosceles triangle

Scalene triangle

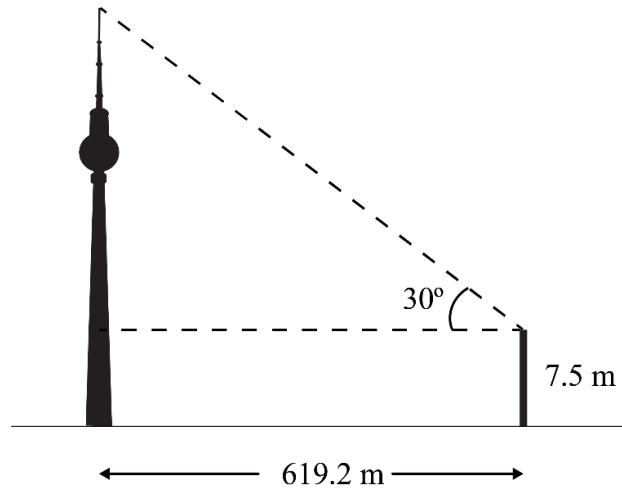


**Question 2** (7 marks)

The height of a vertical pole is 7.5 m.

The angle of elevation from the top of the pole to the top of the Berlin TV Tower is  $30^\circ$ .

The Berlin TV Tower and the pole are 619.2 m apart.



- a.** Find how much taller the Berlin TV Tower is than the pole.  
Round your answer to one decimal place.

2 marks

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- b.** Find the height of the Berlin TV Tower.  
Round your answer to the nearest whole number.

2 marks

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- c.** Write down the angle of depression from the top of the Berlin TV Tower to the top of the pole.

1 mark

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- d.** Find the shortest distance between the top of the Berlin TV Tower and the bottom of the pole.  
Round your answer to the nearest whole number.

2 marks

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**Question 2** (7 marks)

**a.** 2 marks  
Let  $h$  be the height of the Berlin TV Tower above the pole.

$$\frac{h}{619.2} = \tan(30^\circ) \quad (\text{A1})$$

$$h = 619.2 \tan(30^\circ)$$

$$\approx 357.5 \text{ m} \quad (\text{A1})$$

**b.** 2 marks  
 $357.5 + 7.5 \quad (\text{A1})$

$$\approx 365 \text{ m} \quad (\text{A1})$$

**c.** 1 mark  
 $30^\circ \quad (\text{A1})$

**d.** 2 marks  
By Pythagoras' theorem

$$\sqrt{619.2^2 + (619.2 \tan(30^\circ) + 7.5)^2} \quad (\text{A1})$$

$$\approx 719 \text{ m} \quad (\text{A1})$$

**Question 3** (6 marks)

**a.** 2 marks  
 $BH = 6 \times \cos(B)$

$$= 6 \times 0.8$$

$$\approx 4.8 \text{ m}$$

• Correct working is shown to obtain the correct answer.  $(\text{A1}) \times 2$

**b.** 1 mark  
 $HM = 5 - 4.8 = 0.2 \text{ m} \quad (\text{A1})$

**c.** 3 marks

$$AH = \sqrt{6^2 - 4.8^2}$$

$$= \sqrt{12.96}$$

$$= 3.6 \text{ m}$$

• Correct length of  $AH$ .  $(\text{A1})$

$$AM = \sqrt{3.6^2 + 0.2^2} \quad (\text{A1})$$

$$= \sqrt{13}$$

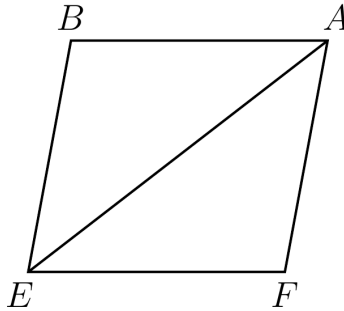
$$\approx 3.6 \text{ m} \quad (\text{A1})$$

**2022 Year 9 Mathematics  
Bearing and Similarity Test**

**Time allowed: 1 hour  
Total marks: 17 marks**

**Question 1 (9 marks)**

$ABEF$  is a rhombus.



- a. Complete the following sentence by writing down the appropriate word. 1 mark

All sides of a rhombus are \_\_\_\_\_.

- b. The working below is an incomplete proof that triangle  $ABE$  and triangle  $AFE$  are congruent. 4 marks

$AB = AF$   
\_\_\_\_ = \_\_\_\_  
\_\_\_\_\_ is common to both triangles.  
By the \_\_\_\_\_ test, triangle  $ABE$  and triangle  $AFE$  are congruent.

Complete the working by writing down the missing words or numbers.

- c. Determine whether or not the angle  $BAE$  is equal to angle  $FAE$  2 marks

Justify your answer.

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- d. Find the sum of the interior angles of  $ABEF$ . 2 marks

Show all working.

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**2022 Year 9 Mathematics**  
**Bearing and Similarity Test**  
**Total marks: 17 marks**

**Question 1 (9 marks)**

**a.** 1 mark  
equal (A1)

**b.** 4 marks  
 $BE = FE$  (A1) $\times 2$   
 $AE$  (A1)  
 SSS (A1)

**c.** 2 marks  
 The diagonal  $AE$  **bisects** the angle  $BAF$ . (A1)  
 (From part **b**) angle  $BAE$  and angle  $FAE$  are equal. (A1)

**d.** 2 marks  
 The sum of the interior angles is  
 $180^\circ \times (4 - 2)$  (A1)  
 $= 360^\circ$  (A1)

- Award full marks for the correct answer.

**Question 2 (8 marks)**

**a.** 1 mark  
Co-interior angles (A1)

**b.** 1 mark  
 $110^\circ$  (A1)

**c.** 2 marks  
 $360^\circ - (240^\circ + 70^\circ) = 50^\circ$  (A1)  
 The angles at a point sum to  $360^\circ$ . (A1)

**d.** 1 mark  
 $290^\circ$  (A1)

**e.** 3 marks  
 Since the obtuse angle at point  $C$  and  $50^\circ$  co-interior angles, the size of the obtuse angle is  
 $180^\circ - 50^\circ = 130^\circ$ . (A1)

Since angles at a point sum to  $360^\circ$ ,  $360^\circ - 130^\circ = 230^\circ$ . (A1)

Therefore, the bearing of  $B$  from  $C$  is  $230^\circ$ . (A1)

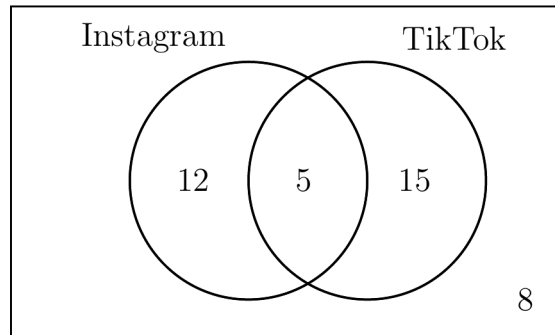
**2022 Year 9 Mathematics  
Probability Test**

**Time allowed: 1 hour  
Total marks: 22 marks**

**Question 1** (6 marks)

A survey was conducted on a group of teenagers. The teenagers were asked whether or not they use Instagram ( $I$ ) or TikTok ( $T$ ).

The following Venn diagram shows the results.



**a.** Find how many teenagers were surveyed.

1 mark

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**b.** Write down the number of teenagers who use neither Instagram nor TikTok.

1 mark

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**c.** A teenager from this group is randomly selected.

**i.** Find the probability that the teenager uses Instagram but not TikTok.

2 marks

Write your answer as a decimal.

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**ii.** Find the probability that the teenager uses Instagram or TikTok.

2 marks

Write your answer as a decimal.

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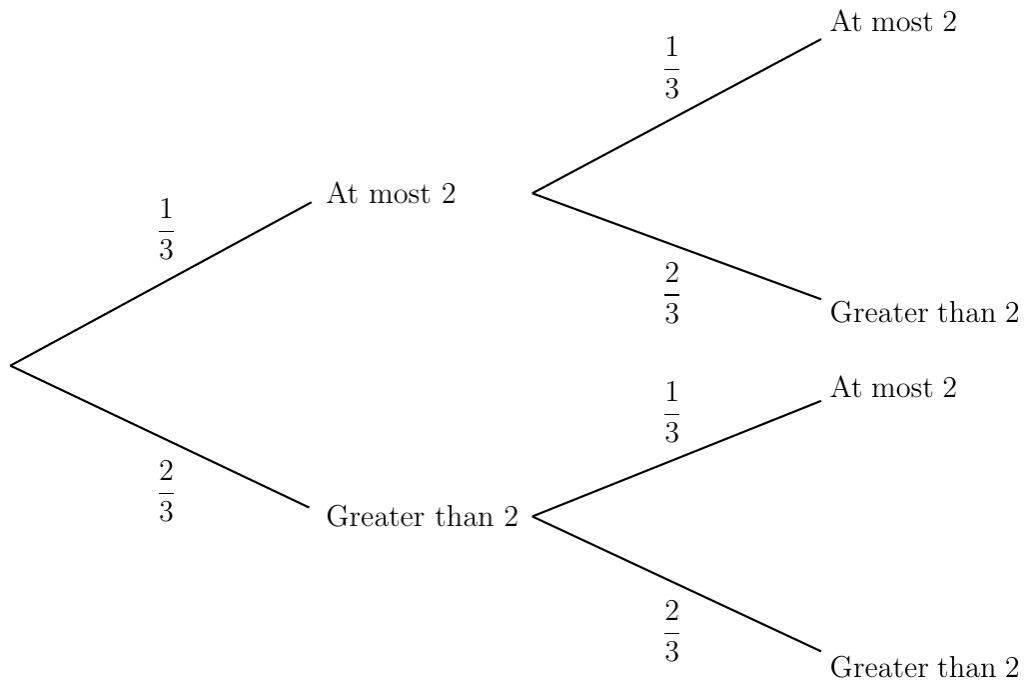
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**Question 3** (9 marks)

A fair die is thrown twice.



Each time, it was noted whether the number shown on the top face was at most 2 or greater than 2. The following tree diagram shows all outcomes.



a. Does throwing the die represent selection with or without replacement?

1 mark

Circle the correct answer.

With replacement

Without replacement

b. Write down the total number of outcomes.

1 mark

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c. Show how the probability  $\frac{1}{3}$  is obtained for the event “obtaining at most 2” on the top face.

1 mark

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**Question 3** (9 marks)

**a.** with replacement (A1) 1 mark

**b.** 4 (A1) 1 mark

**c.**  $\frac{2}{6} = \frac{1}{3}$  (A1) 1 mark

**d.**  $\frac{1}{3} \times \frac{1}{3}$  (A1) 2 marks  
 $= \frac{1}{9}$  (A1)

**e.**  $\frac{1}{3} \times \frac{2}{3} + \frac{2}{3} \times \frac{1}{3}$  (A1) 2 marks  
 $= \frac{4}{9}$  (A1)

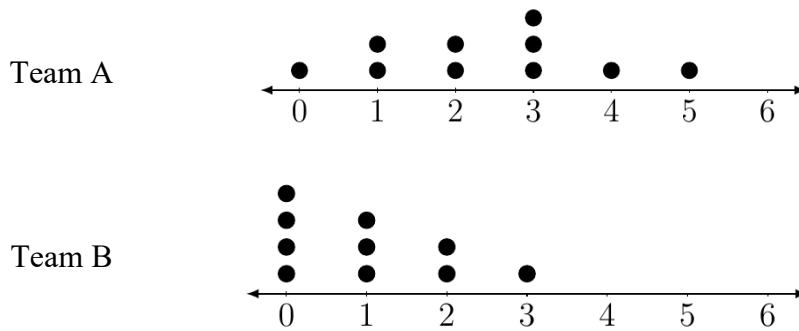
**f.** greater than 2 (A1) 2 marks  
does not matter (A1)

**2022 Year 9 Mathematics  
Statistics Test**

**Time allowed: 1 hour  
Total marks: 22 marks**

**Question 1 (8 marks)**

The following dot plots show the scores earned by two soccer teams (Team A and Team B) in their games this year.



a. Find the range of scores for Team A. 1 mark

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b. Write down the most common score for Team B. 1 mark

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c. Find the mean score of Team B. 2 marks

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d. Complete the sentence below by writing the appropriate words or numbers. 2 marks

The distribution of scores for Team A is roughly \_\_\_\_\_, whereas the distribution for Team B is \_\_\_\_\_.

e. In general, which team earned higher scores? 2 marks

Justify your answer by referring to the dot plots.

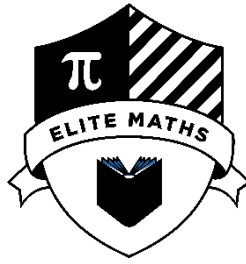
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**Question 3** (10 marks)

- a.** 10 minutes (A1) 1 mark
- b.** minimum (A1) 1 mark
- c.**  $580 \times 75\%$  (A1) 2 marks  
= 435 (A1)
- d.** longer (A1) 4 marks  
3 (A1)  
50 (A1)  
right OR positive (A1)
- e.** 2 marks  
When a numerical variable (A1) is compared with a categorical variable (with 2 or more levels). (A1)



# 2022 YEAR 9 MATHEMATICS

## MIDYEAR TEST

Reading time: 15 minutes

Writing time: 2 hours

## QUESTION BOOK

### Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	15	15	15
B	5	5	25
C	2	2	20
			Total 60

**SECTION A****Instructions for Section A**

Answer **all** questions.

Choose the response that is **correct** for the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

**Question 1**

The smallest positive integer from the list below is

- A.  $-1$
- B.  $0$
- C.  $0.5$
- D.  $1$
- E.  $2$

**Question 2**

$4b^2 \div (2b)$  simplifies to

- A.  $2b$
- B.  $2$
- C.  $2b^3$
- D.  $b^3$
- E.  $8b$

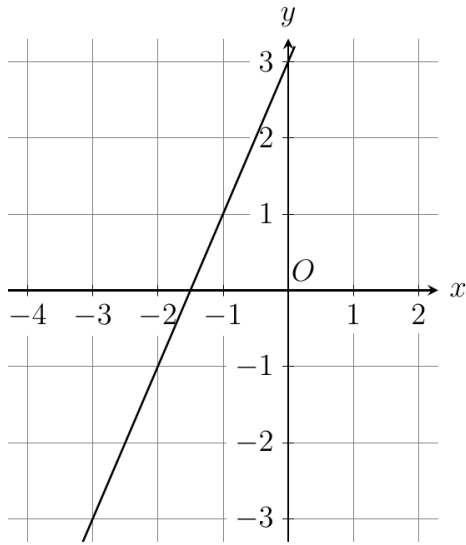
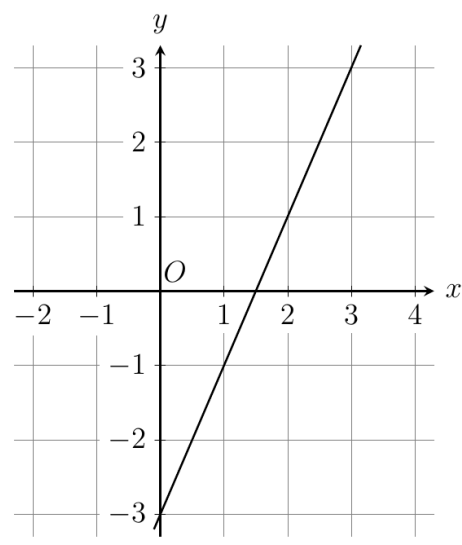
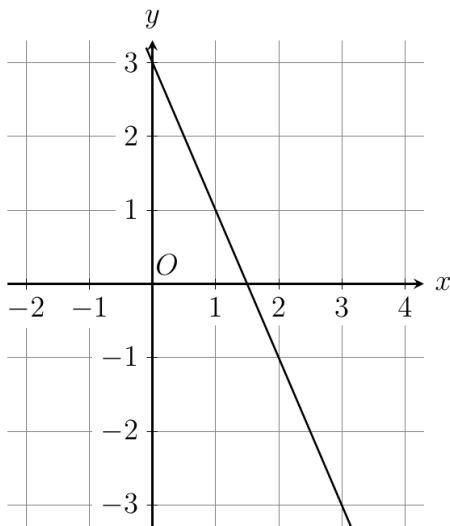
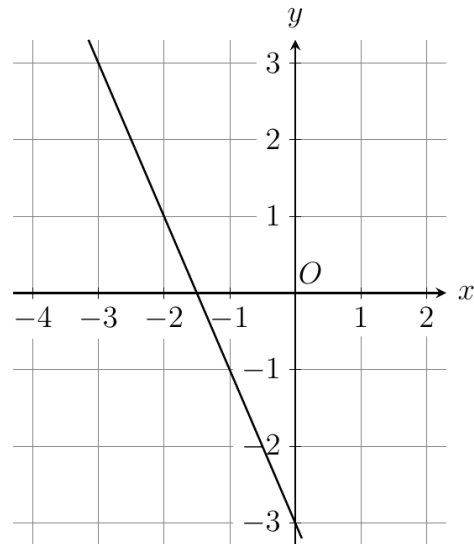
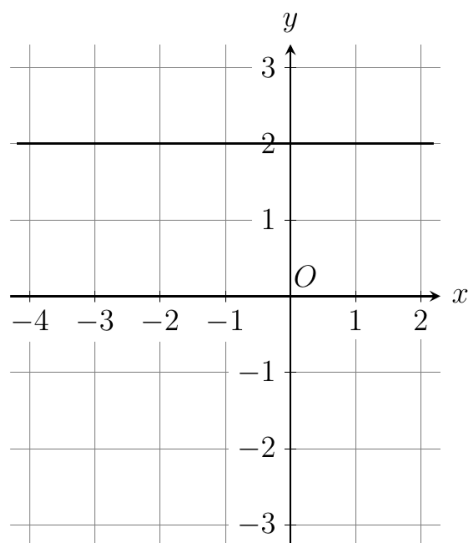
**Question 3**

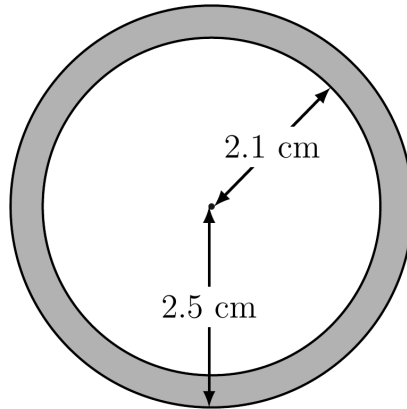
$\frac{11}{24}$  is equal to

- A.  $0.45\dot{3}$
- B.  $0.4583333$
- C.  $0.458$
- D.  $0.4583$
- E.  $0.458\dot{3}$

**Question 7**

The graph of  $y = 3 - 2x$  is best represented by

**A.****B.****C.****D.****E.**

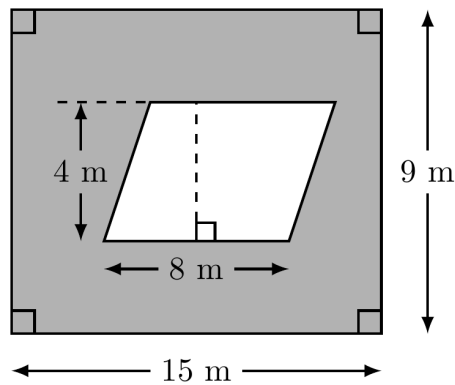
**Question 12**

The area of the shaded region in the diagram above is closest to

- A.  $2.51 \text{ cm}^2$
- B.  $5.78 \text{ cm}^2$
- C.  $13.85 \text{ cm}^2$
- D.  $28.90 \text{ cm}^2$
- E.  $33.49 \text{ cm}^2$

**Question 13**

The following composite shape is made by cutting a parallelogram out from a rectangle.



This composite shape is enlarged by a scale factor of 2.5.

The area of the larger composite shape is closest to

- A.  $80 \text{ m}^2$
- B.  $103 \text{ m}^2$
- C.  $257.5 \text{ m}^2$
- D.  $643.8 \text{ m}^2$
- E.  $843.8 \text{ m}^2$

**SECTION B****Instructions for Section B**

Answer **all** questions.

In all questions where a numerical answer is required, an **exact** value must be given unless otherwise specified.

In questions where more than one mark is available, appropriate working **must** be shown.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

**Question 1** (5 marks)

The sum of three consecutive numbers is 138.

Let  $y$  be the largest number of the three.

**a.** Write the smallest number in terms of  $y$ .

1 mark

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**b.** Show that the equation  $3y - 3 = 138$ .

2 marks

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**c.** Solve the equation in part **b** to find the middle number.

2 marks

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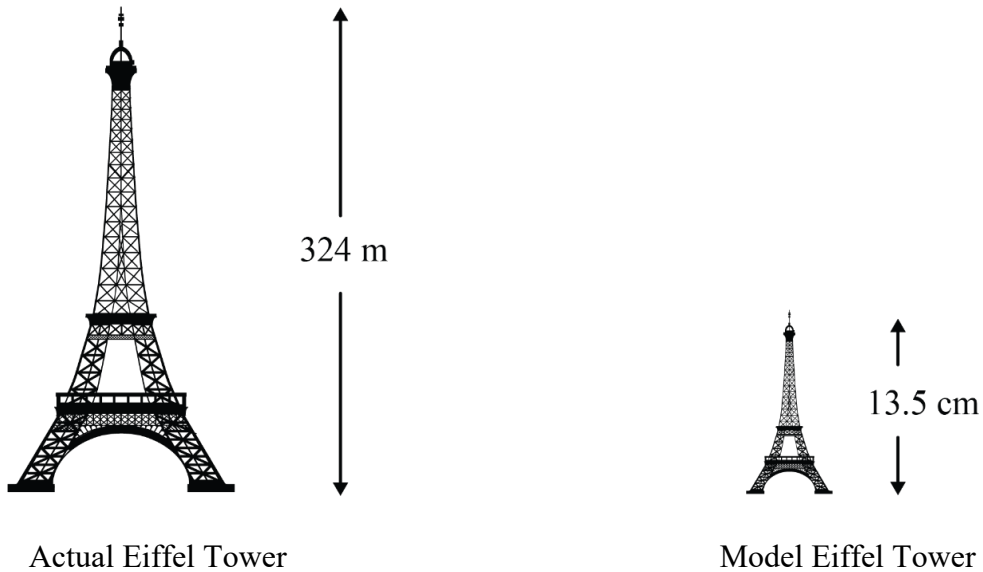
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**Question 5** (5 marks)

The Eiffel Tower in Paris stands at 324 metres tall. A smaller model of the Eiffel Tower, built to scale, is 13.5 cm tall.



a. Convert 13.5 cm to m.

1 mark

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b. Calculate the scale factor used to enlarge the model Eiffel Tower into the actual Eiffel Tower. 2 marks

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c. Are the model Eiffel Tower and actual Eiffel Tower congruent?  
Justify your answer.

2 marks

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**SECTION C****Instructions for Section C**

Answer **all** questions.

In all questions where a numerical answer is required, an **exact** value must be given unless otherwise specified.

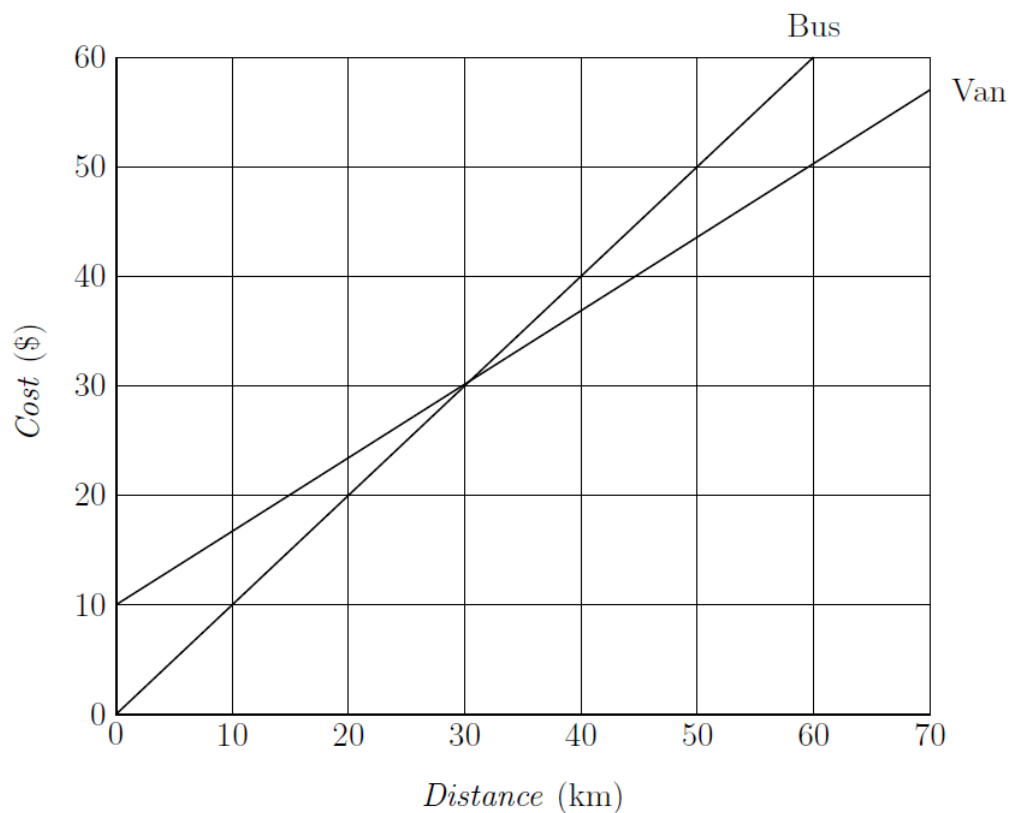
In questions where more than one mark is available, appropriate working **must** be shown.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

**Question 1** (10 marks)

A school wants to hire a vehicle for their upcoming excursion.

The following two lines show the costs of hiring either a bus or a van.



- a.** Explain how the graphs show that the cost of hire is greater for longer distances travelled. 1 mark

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- b.** For what distance travelled is the cost of hiring a bus the same as the cost of hiring a van? 1 mark

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- c. How was your answer to part b found? 1 mark

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- d. Write down the fixed cost of hiring a van. 1 mark

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- e. Write down the equation for the cost of hiring a van. 2 marks

$$\text{Cost} = \boxed{\phantom{000}} + \boxed{\phantom{000}} \times \text{Distance}$$

- f. A client who hired a van was charged \$48. 2 marks  
Find the distance that this client travelled with the van.

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- g. Compare the cost of hiring of a bus and the cost of hiring a van when the distance travelled is at least 30 km. 2 marks

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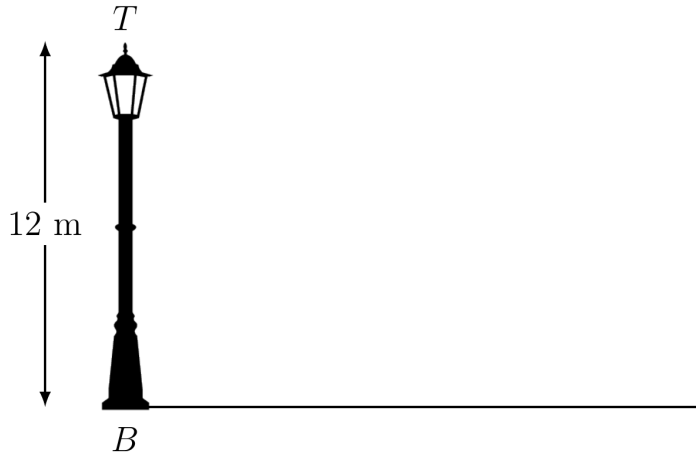
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**Question 2** (10 marks)

A lamp post stands 12 m tall above flat ground.

Lisa walks away from the base of the lamp post ( $B$ ) until she comes to point  $C$  on the ground, from which the angle of elevation to the top of the lamp post ( $T$ ) is  $60^\circ$ . She then walks a further distance to reach point  $D$  on the ground, from which the angle of elevation to the top of the lamp post is  $40^\circ$ .

- a. Complete the following diagram representing the information given by drawing the relevant lines and labelling the appropriate angles. 3 marks



- b. In the shape formed by points  $B$ ,  $C$  and  $T$ , what is the mathematical name of  $CT$ ? 1 mark

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- c. Find an expression for the length  $BC$ . 2 marks  
Do not evaluate your answer.

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- d. Find the distance between point  $C$  and point  $D$ . 2 marks  
Round your answer to two decimal places.

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**2022 YEAR 9 MATHEMATICS MIDYEAR TEST****SOLUTIONS****SECTION A**

Question	Answer
1	D
2	A
3	E
4	C
5	E
6	D
7	C
8	E
9	B
10	A
11	D
12	B
13	D
14	C
15	C

**Question 1**

1 is the smallest positive integer.

Answer is **D**.

**Question 2**

$$4b^2 \div (2b) = 2b$$

Answer is **A**.

**Question 3**

$$\frac{11}{24} = 0.458\bar{3}$$

Answer is **E**.

**Question 4**

The sum of the interior angles of the pentagon is  $180^\circ \times (5 - 2) = 540^\circ$ .

The size of the missing interior angle is  
 $540^\circ - (105^\circ + 110^\circ + 108^\circ + 130^\circ) = 87^\circ$

Therefore,  $x = 180^\circ - 87^\circ = 93^\circ$

Answer is **C**.

**Question 3 (5 marks)**

**a.** 2 marks  
 $\$1,121 \times 52$  (A1)  
 $= \$58,292$  (A1)

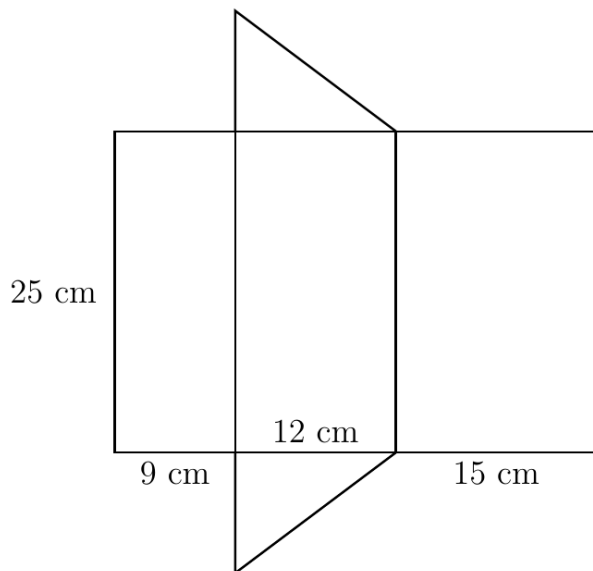
**b.** 3 marks  
 $\$1,121 \times 4 \times 1.175 + \$1,121 \times 4 \times 2 = \$14,236.70$

- Correct holiday pay ( $\$1,121 \times 4 \times 1.175$ ). (A1)
- Correct normal pay ( $\$1,121 \times 4 \times 2$ ). (A1)
- Correct answer. (A1)

**Question 4 (5 marks)**

**a.** 2 marks  
 $x = \sqrt{15^2 - 12^2}$  (A1)  
 $= \sqrt{81}$   
 $= 9$  (A1)

**b.** 3 marks



- Correct triangular face is drawn. (A1)
- Correct rectangular face is drawn. (A1)
- Appropriate edges are correctly labelled. (A1)