

# Grade 8 Mathematics

## Examination Revision Workshop

27<sup>th</sup> October 2026



NAME: \_\_\_\_\_

## QUESTION 1 – NUMBERS!

- a. Give all the prime numbers between 20 and 40
- b. Give the first 6 multiples of 3
- c. Give the even multiples of 3 between 30 and 50
- d. Give all the factors of 60
- e. Give the even factors of 28
- f. List all the common factors of 40 and 60
- g. Give the highest common factor of 18 and 48
- h. Give the lowest common multiple of 12 and 30
- i. Prime factorise the following numbers:

300

280

450

720



Use your answers to the above questions to calculate the following:

j. the HCF of 300 and 280

k. the LCM of 450 and 720

l. the smallest number by which 280 can be multiplied to give a perfect square

m. the smallest number by which 450 can be multiplied to give a perfect cube.



## QUESTION 2 – INTEGERS

- a. Write the following numbers in **ascending** order (biggest to smallest)

3 ; -2 ; 0 ; 7 ; -11 ; 9 ; 8 ; -12 ; 6

- b. write the following numbers in **descending** order (smallest to biggest)

3 ; -1 ; 4 ; -5 ; -7 ; 0 ; 11 ; -2 ; 9 ; -10 ; 12

- c. **Evaluate** (work out the value of) the following:

$$2 - 7$$

$$-5 + 2$$

$$-3 - 4$$

$$-8 + 10$$

$$2 \times -3$$

$$5 - (-2)$$

$$-4 + (-2)$$

$$\frac{-12}{-4}$$

$$-3 - (+6)$$

$$-3 + 4 \times -1$$

$$(7 - 8)^{21}$$

$$4 - 8 \div -2$$

$$3 + 2 \times -4 + \frac{8}{-2}$$

$$\sqrt{9} - 2\sqrt{16}$$

$$4 + \sqrt[3]{-27} - \sqrt[3]{-8}$$

### QUESTION 3 – FRACTIONS

a. Give three equivalent fractions to  $\frac{3}{5}$

b. Simplify the following fractions:

$$\frac{4}{14}$$

$$\frac{300}{1\,200}$$

$$\frac{48}{96}$$

c. Arrange the following fractions from biggest to smallest by first converting them to the same denominator:

$$\frac{2}{5}; \frac{1}{3}; \frac{3}{4}; \frac{1}{2}; \frac{1}{6}$$

d. Arrange the following fractions from smallest to biggest by first converting them to the same denominator:

$$\frac{3}{4}; \frac{1}{2}; -\frac{3}{5}; -\frac{2}{3}; 1\frac{2}{3}; -\frac{1}{3}; 1\frac{3}{5}$$

e. Insert a fraction between  $\frac{5}{9}$  and  $\frac{6}{9}$

f. insert a fraction between  $\frac{4}{7}$  and  $\frac{4}{8}$



g. Perform the following calculations:

$$\frac{2}{3} + \frac{1}{4}$$

$$\frac{3}{5} \times \frac{2}{3}$$

$$1\frac{1}{2} \times 1\frac{2}{5}$$

$$\frac{3}{4} \div \frac{9}{8}$$

$$\frac{2}{3} + \frac{3}{4} \times -\frac{2}{9}$$

$$\frac{3}{5} - \frac{2}{3}$$

$$\frac{2}{3} \text{ of } 8\frac{1}{4}$$

$$\frac{2}{5} \times \frac{5}{7} \times \frac{7}{11} \times \frac{1}{2}$$

$$\frac{2}{3} \div \frac{1}{2} + \frac{4}{5} \times 1\frac{2}{3}$$



#### QUESTION 4 - DECIMALS

- a. Express the following as fractions in their simplest form

0,08

2,5

0,64

0,002

4,8

0,124

- b. Express the following as percentages:

$\frac{3}{10}$

$\frac{6}{20}$

0,03

0,57

$\frac{5}{40}$

$\frac{48}{400}$

- c. A shopkeeper offers a 20% discount. What does an item costing R300 now cost?

- d. A shopkeeper marks up by 15%. What does an item which cost R240 cost after the mark up?

- e. Thabo gets  $\frac{17}{25}$  on a test. Sipho gets  $\frac{37}{50}$ . Phumlani gets  $\frac{67}{85}$ . Who did the best?



## QUESTION 5 – EXPONENTS

a. Write out in full:

$$3^5$$

$$2^4$$

$$4^2$$

b. Simplify:

$$5^{12} \times 5^7$$

$$\frac{2^{14}}{2^3}$$

$$\frac{3^5 \times 2^6 \times 3^4 \times 2^{11}}{2^3 \times 3 \times 2^8 \times 3^6}$$

$$\frac{2^3 \times 2^5}{2^2 \times 2^6}$$

$$(-2)^3 - (-3)^2$$

$$\sqrt[3]{-1\,000} - \sqrt[4]{16}$$

c. simplify, expressing your answers in scientific notation:

$$23 \times 10^4$$

$$0,035 \times 10^8$$

$$480 \times 10^6$$

$$20 \times 10^5 \times 30 \times 10^6$$

$$200 \times 10^7 + 6\,000 \times 10^5$$



## QUESTION 6 – NUMBER PATTERNS

- a. Write down the next three numbers in each of the following:

2 ; 6 ; 10 ; 14 ; .....

4 ; 7 ; 10 ; 13 ; ....

1 ; 2 ; 4 ; 8 ; ....

8 ; 5 ; 2 ; ....

800 ; -400 ; 200 ; -100 ; ....

- b. Complete the following tables. In each case we get to the bottom row by taking the number in the top row and multiplying / dividing it by some number and then possibly adding / subtracting some number.

|   |   |   |   |    |    |          |          |
|---|---|---|---|----|----|----------|----------|
| 1 | 2 | 3 | 4 | 10 |    | <i>a</i> |          |
| 2 | 4 | 6 |   |    | 50 |          | <i>b</i> |

|   |   |    |   |   |     |          |          |
|---|---|----|---|---|-----|----------|----------|
| 1 | 2 | 3  | 4 | 8 |     | <i>a</i> |          |
| 4 | 7 | 10 |   |   | 301 |          | <i>b</i> |

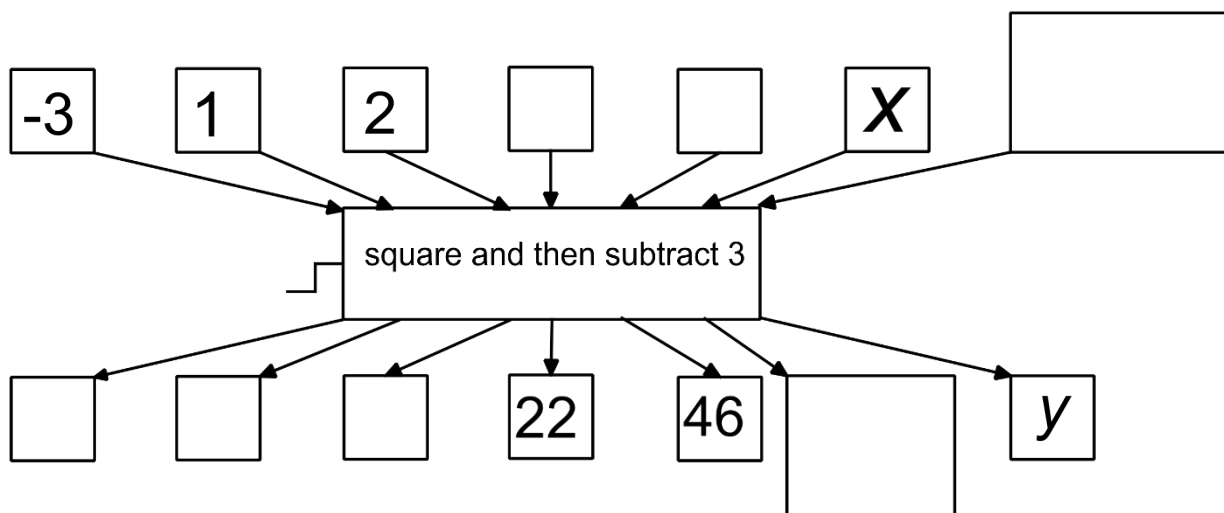
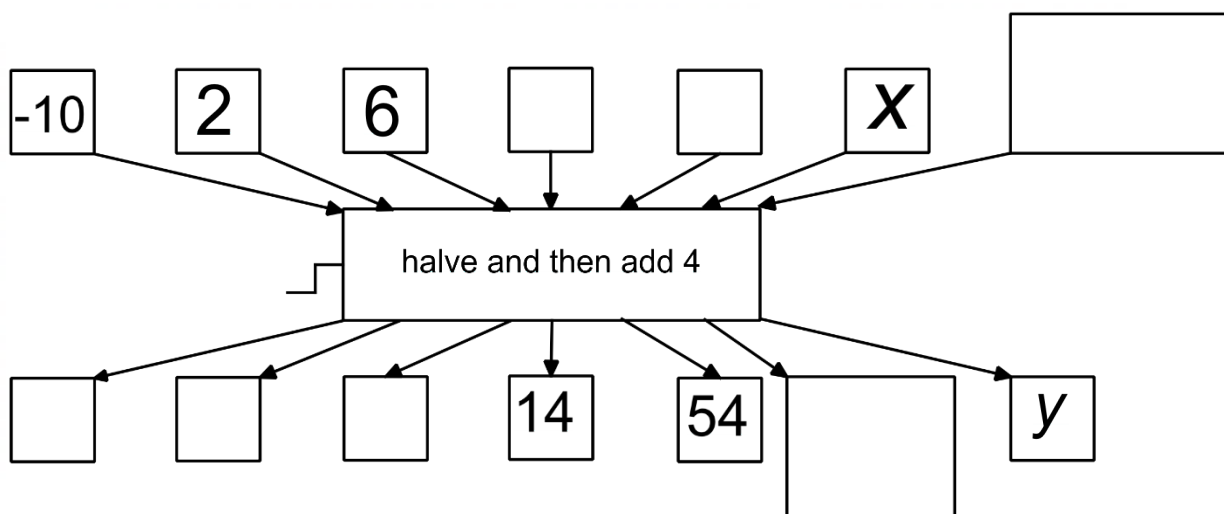
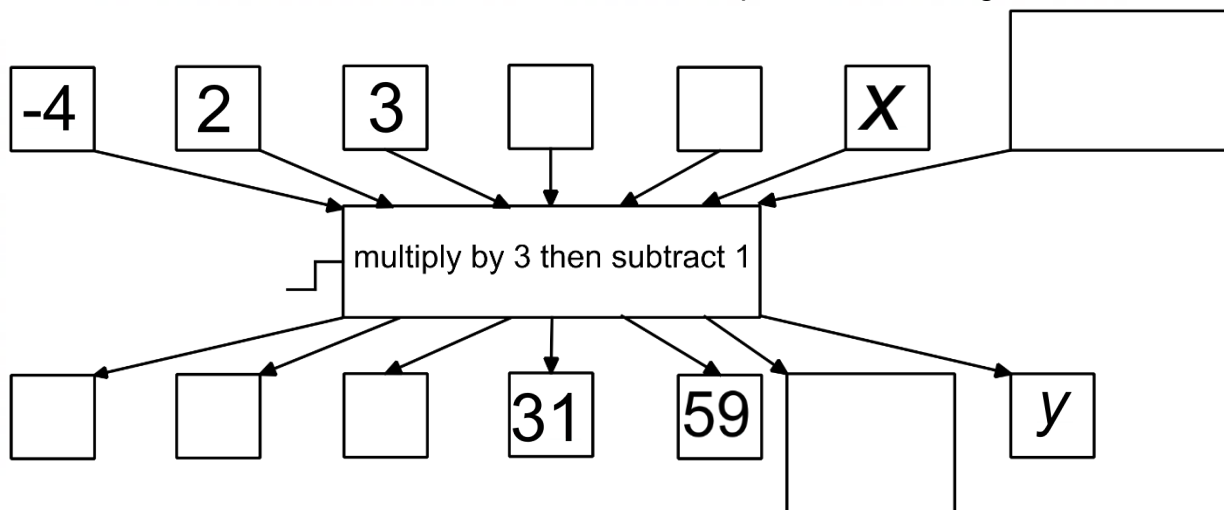
|    |    |    |    |    |     |          |          |
|----|----|----|----|----|-----|----------|----------|
| 12 | 16 | 20 | 40 | 62 |     | <i>a</i> |          |
| 7  | 9  | 11 |    |    | 101 |          | <i>b</i> |

|   |   |   |   |    |    |          |          |
|---|---|---|---|----|----|----------|----------|
| 1 | 2 | 3 | 4 |    | 10 | <i>a</i> |          |
| 1 | 4 | 9 |   | 81 |    |          | <i>b</i> |

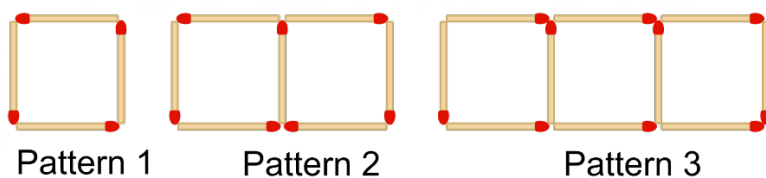


QUESTION 7 – FUNCTIONS AND RELATIONS.

Complete the following function machines:



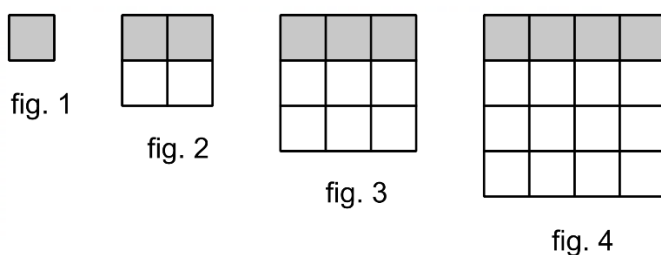
- b. Busi is making patterns out of matches as follows:



Complete the table below:

|                   |   |   |   |   |    |     |     |     |
|-------------------|---|---|---|---|----|-----|-----|-----|
| Pattern number    | 1 | 2 | 3 | 4 |    | $n$ |     |     |
| Number of squares |   |   |   |   |    |     | $p$ |     |
| Number of matches |   |   |   |   | 31 |     |     | $m$ |

- c. Mr Zimamba is making patterns with squares:



Complete the table below:

|                         |   |   |   |   |    |     |     |     |     |
|-------------------------|---|---|---|---|----|-----|-----|-----|-----|
| Pattern number          | 1 | 2 | 3 | 4 |    | $n$ |     |     |     |
| Number of squares       |   |   |   |   |    |     | $p$ |     |     |
| Number of grey squares  |   |   |   |   |    |     |     | $g$ |     |
| Number of white squares |   |   |   |   | 56 |     |     |     | $w$ |

- d. A burger costs R8 and a packet of chips R3. Complete the table below:

| Number of<br> | Number of<br> | Cost |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------|
| 1                                                                                              | 3                                                                                              |      |
| 2                                                                                              | 4                                                                                              |      |
| 3                                                                                              |                                                                                                | 33   |
|                                                                                                | 5                                                                                              | 39   |
| $b$                                                                                            | $c$                                                                                            |      |
|                                                                                                |                                                                                                | $p$  |
|                                                                                                | $c$                                                                                            | $p$  |
| $b$                                                                                            |                                                                                                | $p$  |

- e. Give algebraic expressions for the following:

the number of learners in a class if there are  $b$  boys and  $g$  girls

the number of days in  $w$  weeks and  $d$  days

the number of minutes in  $d$  days and  $h$  hours and  $m$  minutes

the price of a chocolate if a bun costs twice as much as a chocolate and a bun costs  $b$

## QUESTION 8 – ALGEBRAIC EXPRESSIONS

- a. Evaluate (find the value of the following expressions if  $w = -2$  and  $y = 3$ )

$$2w - y$$

$$3y - w$$

$$y^2 + w^3$$

$$-2wy$$

$$(w + y)^6$$

$$\sqrt{-6wy}$$

- b. Rewrite the following expressions in alphabetical order without changing their value:

$$-3f + 4c - 2a + 5e - d + 2b$$

$$4w - 3u + v - z + 8y + 6x$$

- c. Consider the expression:  $5x^2 + 3x - 6x^3 + 7$

What is its degree?

What is the constant term?

What is the coefficient of  $x^3$ ?

Rewrite it in descending powers of  $x$

- d. Simplify the following expressions:

$$2x + 5y + 3x + 4y$$

$$x + x + x + y + y$$

$$a + a + a + a \times a \times a$$

$$t \times t \times t \times t \times t \times t \times t$$

$$4x - 5y + 2x - 7y$$

$$3ab + 4a + 6ba + 2b$$

$$2a^2b + 5b^2a + 4ab^2 + 3ba^2$$

$$2(a + 3b)$$



$$4x(x - y) - 2x(x + y)$$

$$3(x - y) - 2(x - 3y)$$

$$4(x + 2) - 3(x - 1)$$

$$\frac{4x + 8}{2}$$

$$\frac{9a + 12b - 6}{-3}$$

$$4xy + 2x \times (-3y)$$

$$8x^2 - 4x^3 \div 2x$$

$$3x^3y + (4x)(-2x^2y)$$

### QUESTION 9 – ALGEBRAIC EQUATIONS

a. Solve:

$$2x + 1 = 11$$

$$3x - 2 = 19$$

$$2(x + 3) + 1 = 17$$

$$\frac{x + 2}{3} = 3$$

$$\frac{x}{4} + 1 = 11$$

$$\frac{2x + 1}{3} + x = 7$$

$$2x + 3 = x + 9$$

$$4x + 8 = 2x + 20$$



$$5x + 10 = 3x + 8$$

$$3x + 2 = 7x + 9$$

$$5x + 4 = -3(x - 2)$$

$$2(x + 4) + 1 = x + x + 9$$

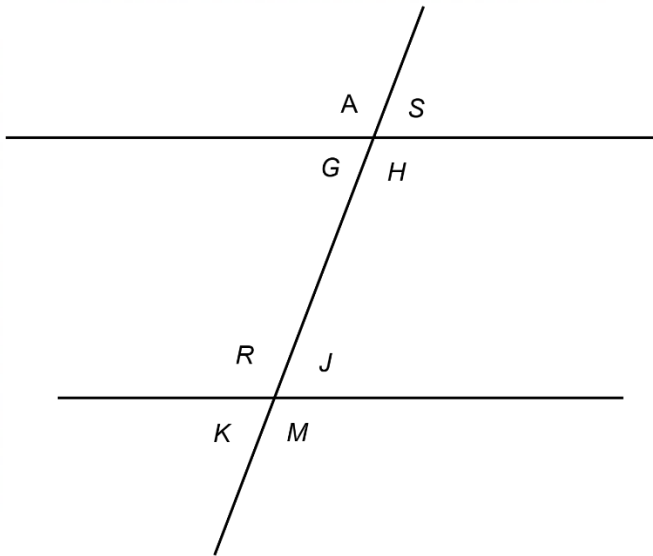
$$3(2x + 1) + 1 = 6x + 3$$

- b. Lungelo takes a number. He doubles it and then adds 3. Busi takes the same number but she multiplies it by 3 and then subtracts 1. They get the same answer. What number did they both start with? Let it be  $x$ .
- c. A man is currently 7 times as old as his son. In ten years time he will only be 3 times as old as his son. How old is the son now? Let his age now be  $x$ .



## QUESTION 10 – GEOMETRY OF STRAIGHT LINES

- a. Consider the diagram below:



Identify all pairs of vertically opposite angles

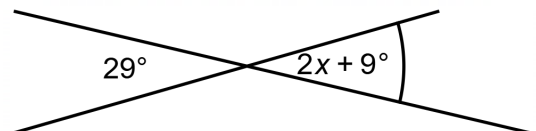
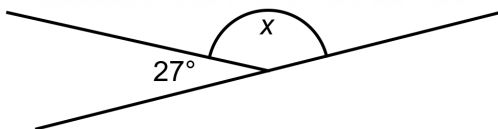
Identify all pairs of adjacent supplementary angles

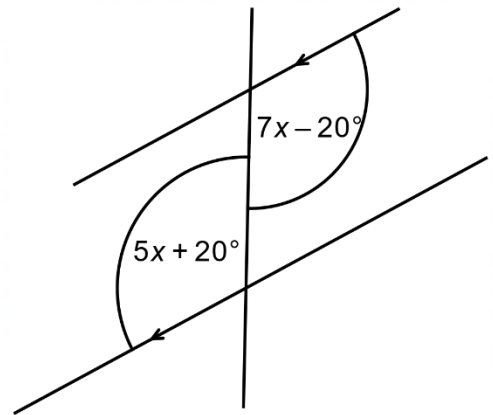
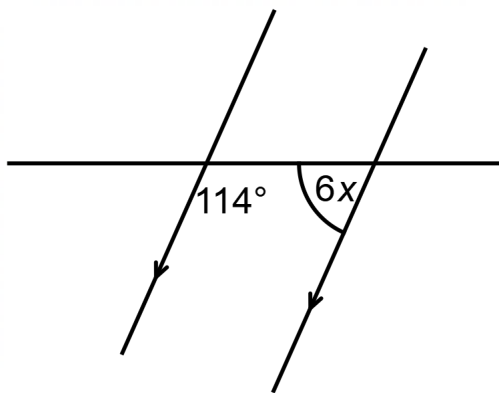
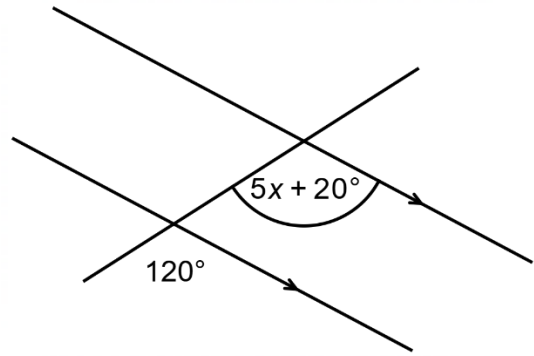
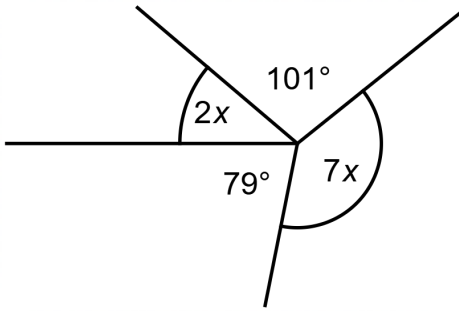
Identify all pairs of corresponding angles

Identify all pairs of alternate angles

Identify all pairs of co-interior angles

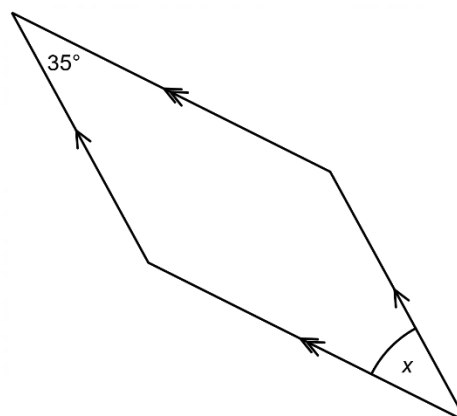
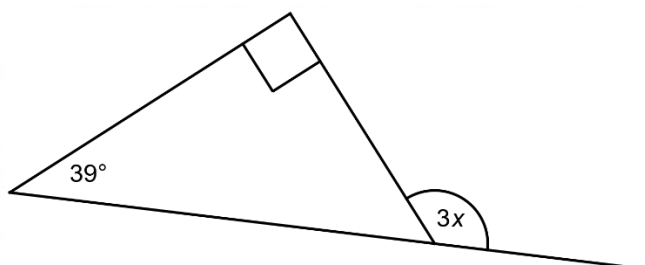
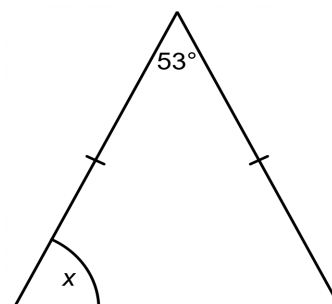
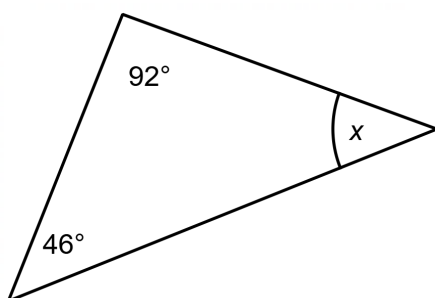
- b. Solve for  $x$  giving reasons in each case:





## QUESTION 11 – GEOMETRY OF 2D SHAPES

- a. Give three properties of a parallelogram
- b. What is an isosceles triangle?
- c. What do the angles of a triangle add up to?
- d. What is the exterior angle of a triangle equal to.
- e. What is true about congruent figures?
- f. What is true about similar figures?
- g. Solve for  $x$  giving reasons in each case:



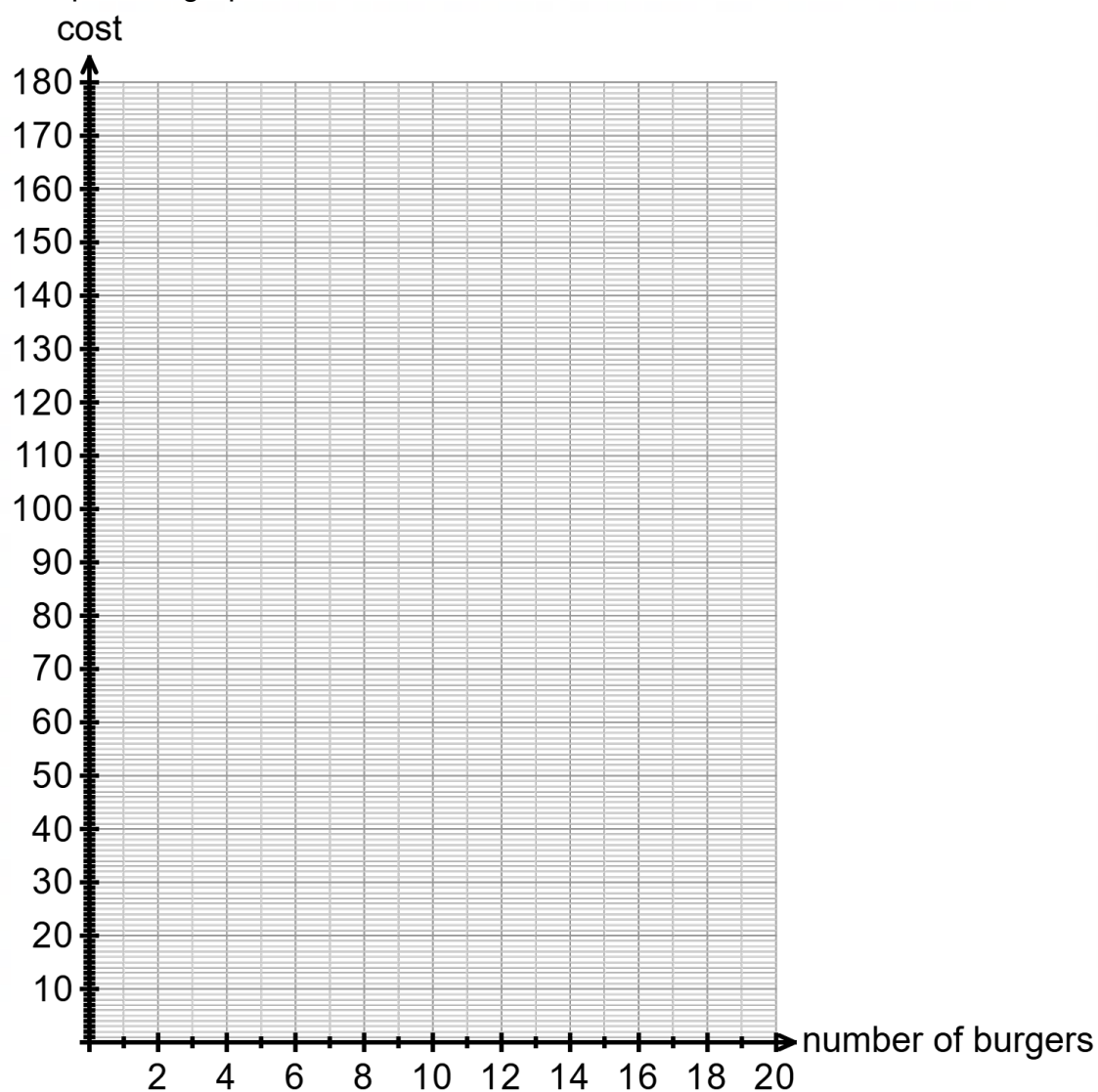
## QUESTION 12 – INTERPRETING GRAPHS

a. Vusi buys some burgers:

Complete the following table

|                   |    |    |   |    |     |
|-------------------|----|----|---|----|-----|
| Number of burgers |    | 5  | 8 | 10 |     |
| Cost              | 18 | 45 |   |    | 180 |

Now plot the graph

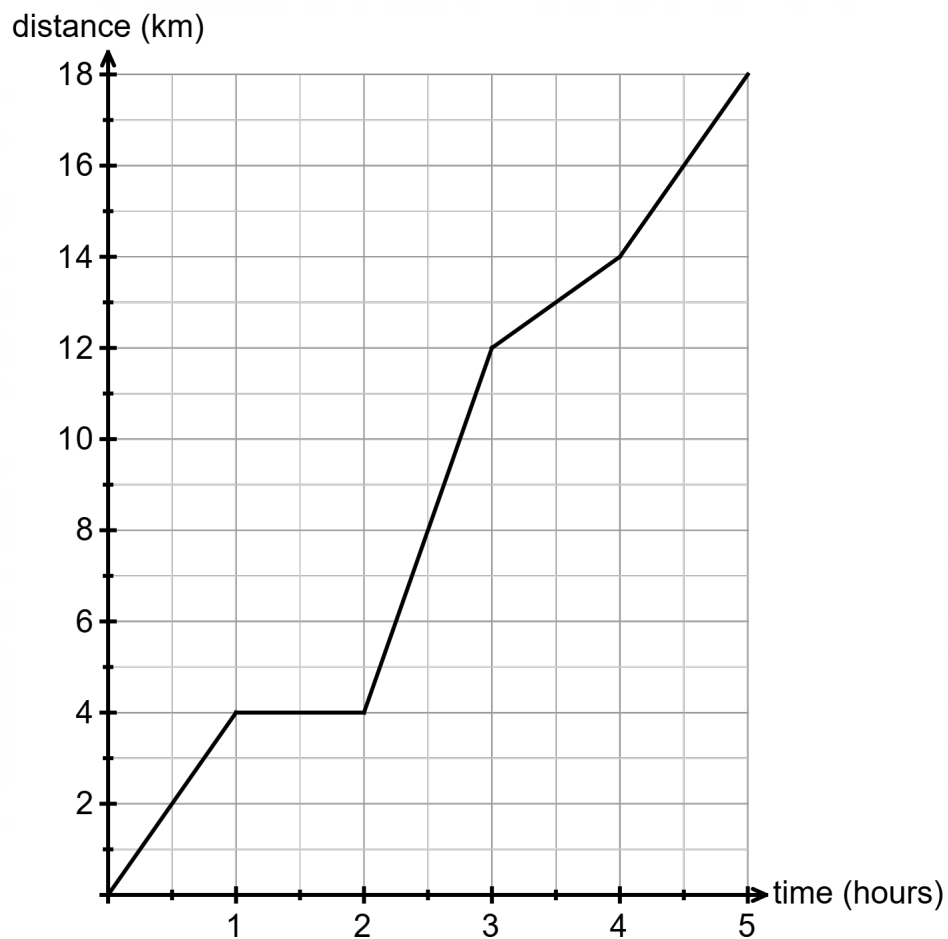


USE YOUR GRAPH to determine:

the price of 6 burgers

how many burgers one can buy for R72

- b. The graph below shows the distance covered by Busi on a run



What was the total distance she covered?

What was her average speed

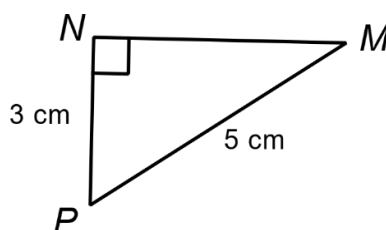
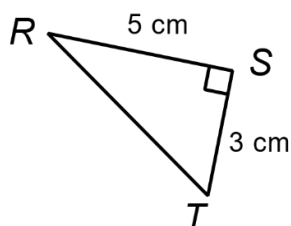
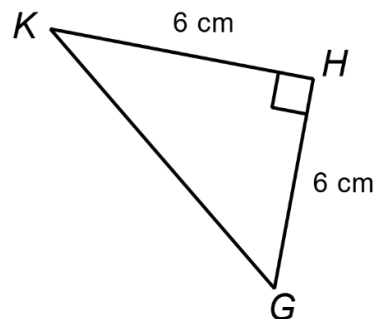
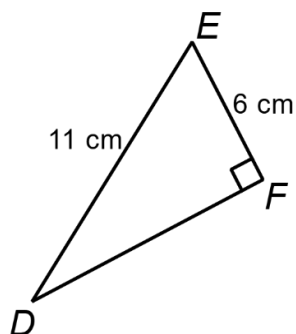
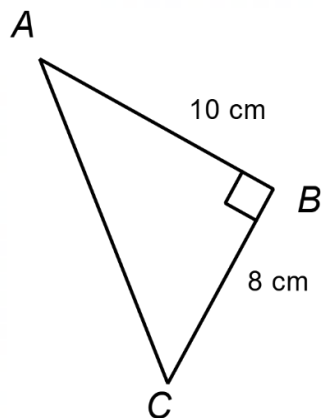
When did she stop?

When was she going fastest?



### QUESTION 13 – PYTHAGORAS

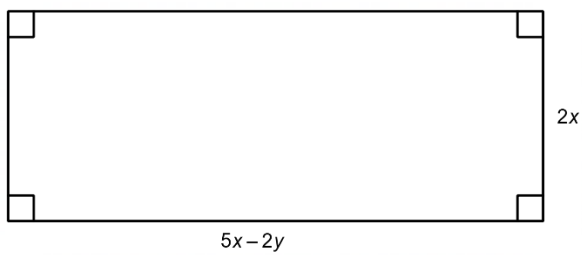
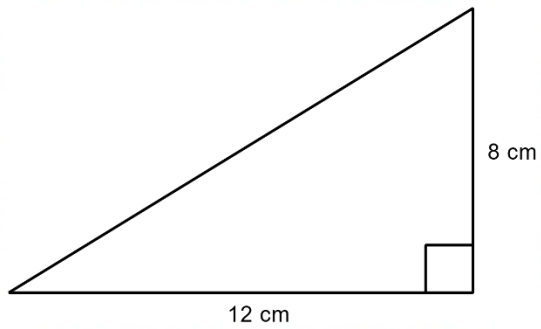
a. Determine the missing sides in the following figures:



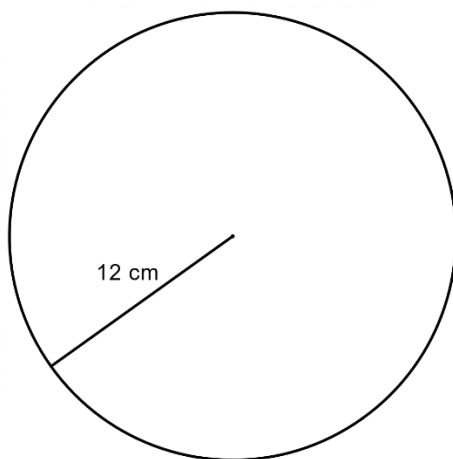
b. A 3m ladder is leaning against a wall to a height of 2,4 m. How far is the base of the ladder from the wall?

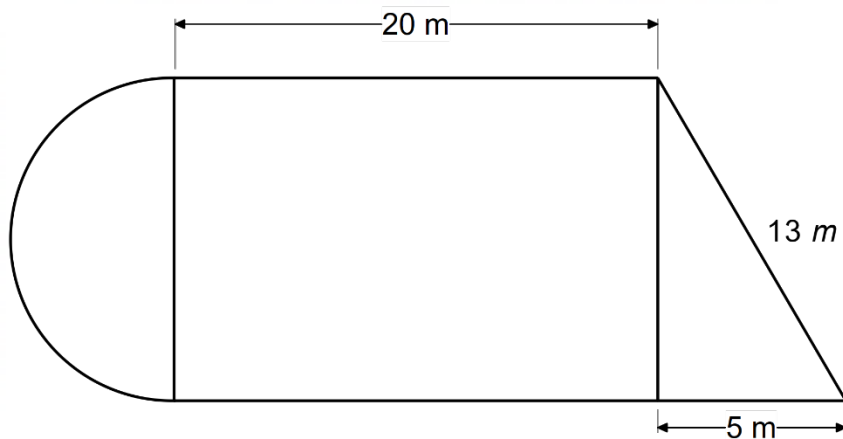
## QUESTION 14 – PERIMETER AND AREA

- a. Determine the area and perimeter of the following shapes:



in terms of  $x$





- b. A square has an area of  $400 \text{ cm}^2$ . What is its perimeter.
- c. A circle has an area of  $300 \text{ cm}^2$ . What is its circumference?



- f. Convert:
- 285 m to cm                      3 245 300 mm to km

