2022-23

GCSE Target Work

AQA Exam Questions January to February

Name:

Vocational Course:

Contents

All Questions are from AQA past papers and topic tests

Source	Target	Completion (Y/N)

Frequency Trees
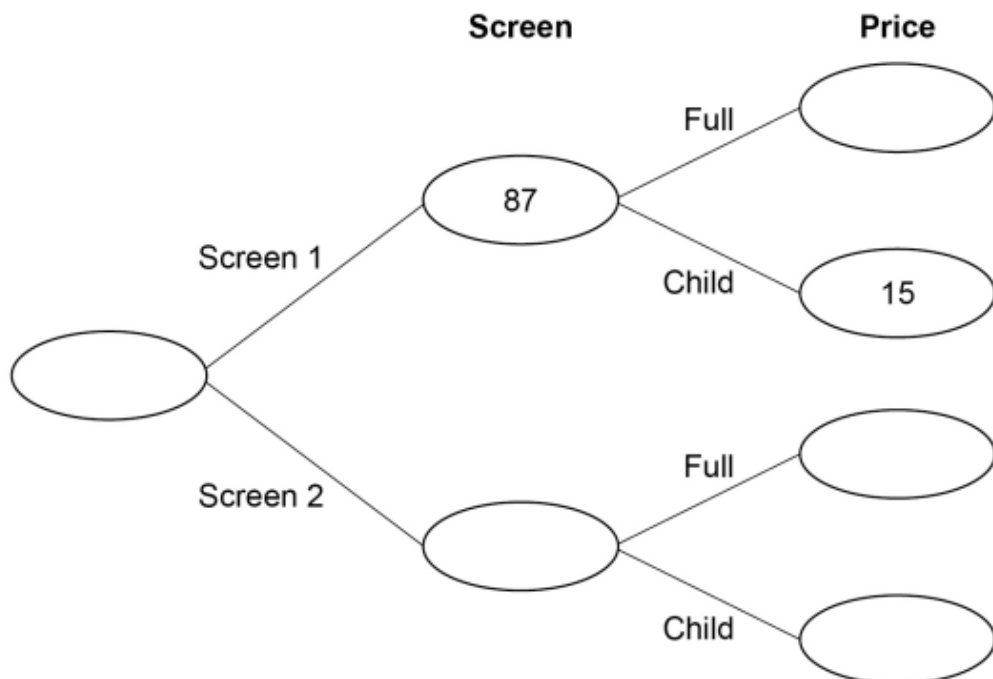
Non-Calculator

Grade 3 - 4

(November 2018)

At a cinema, films are shown on Screen 1 and Screen 2
Customers pay full price or child price.

There are three times as many customers in Screen 2 as Screen 1
68 customers paid child price.

Complete the frequency tree.
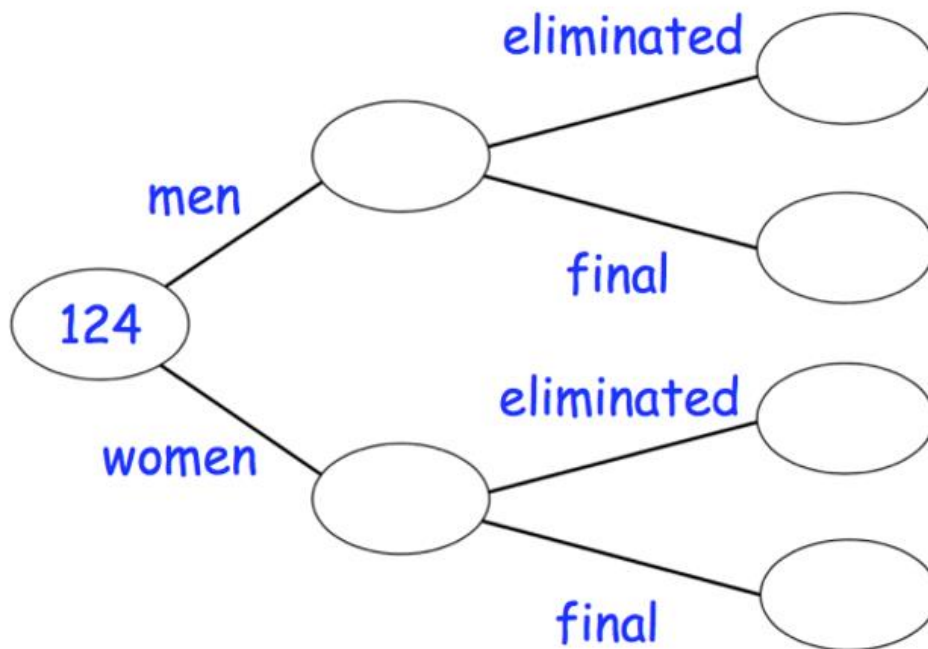
[5 marks]

124 people took part in a talent show.

76 of the people were women.

14 people made it through to the final and the rest were eliminated.

6 men made it through to the final.

Complete the frequency tree   **[2 marks]**
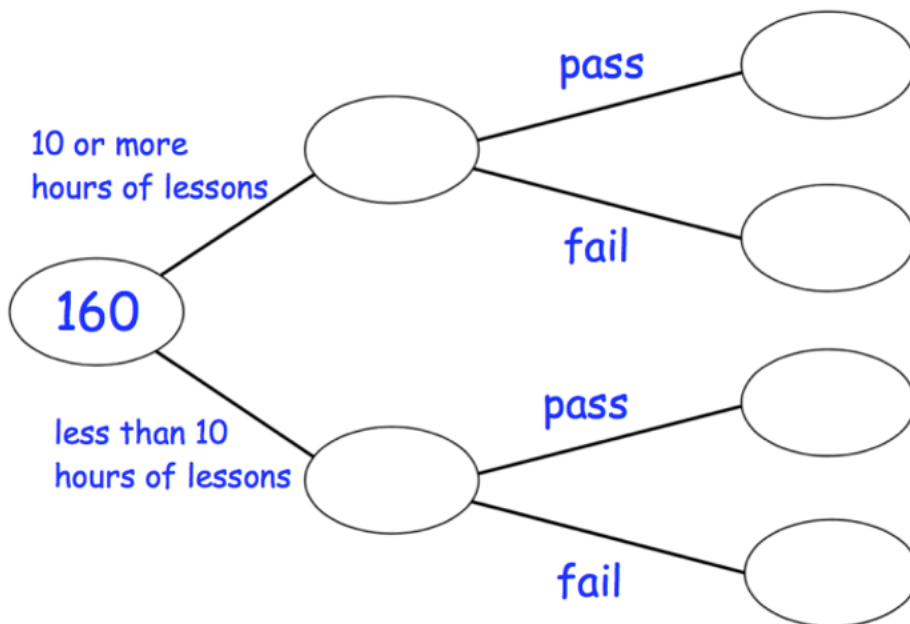
160 people sit their driving test.

108 people took 10 or more hours of driving lesson.

29 of the people who took 10 or more hours of driving lessons failed their test.

104 people passed their driving test altogether.

a) Use this information to complete the frequency tree.

[2 marks]

One of the people who took less than 10 hours of lessons is picked at random.

b) Work out the probability that this person passed their driving test

[2 marks]

Answer: _____
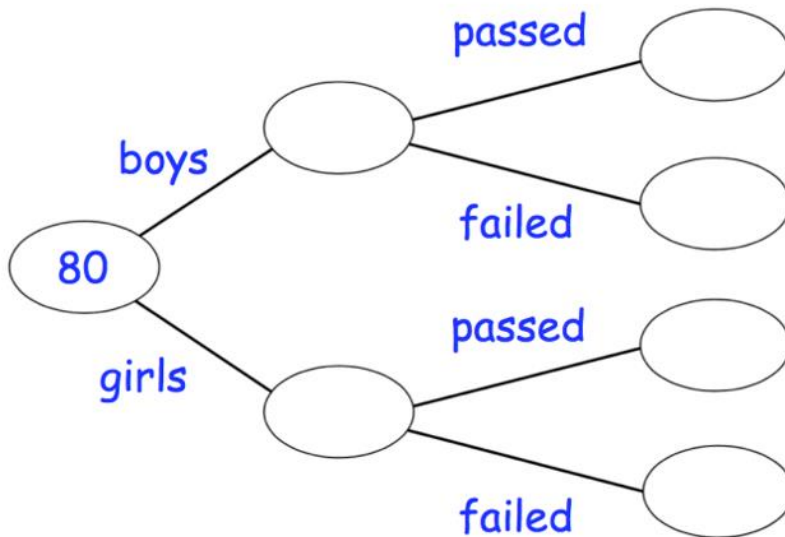
80 children sat a test.

36 of the children are girls.

9 of the 80 children failed the test.

39 of the boys passed the test.

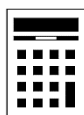(a) Use this information to complete the frequency tree.

[3 marks]

One of the boys is chosen at random.

(b) Work out the probability that the boy failed the test.

[2 marks]

Calculator
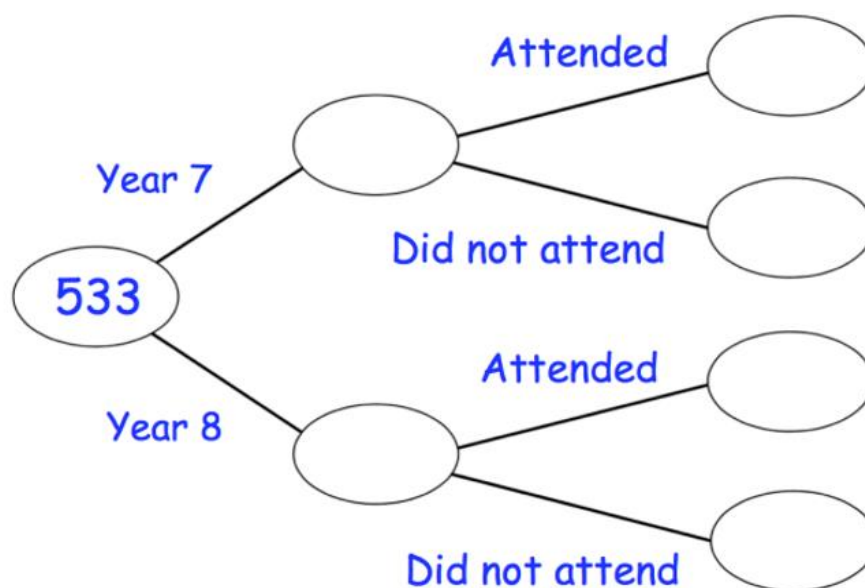
Grade 3 - 4

(corbettmaths)

In a secondary school, there are 533 students altogether in Years 7 and 8.

There are 255 students in Year 8.

The PE department run football training after school on a Thursday for Year 7 and 8 students.

85 of the 165 students that attended football training are in Year 7.

  a) Complete the frequency tree   [2 marks]

Mr Edwards says

"A greater percentage of the students in Year 7 attended football training than the students in Year 8."

b) Explain why Mr Edwards is wrong.

[3 marks]

On a Saturday evening, 390 people watched movies in a cinema.

The cinema sells two different types of ticket,
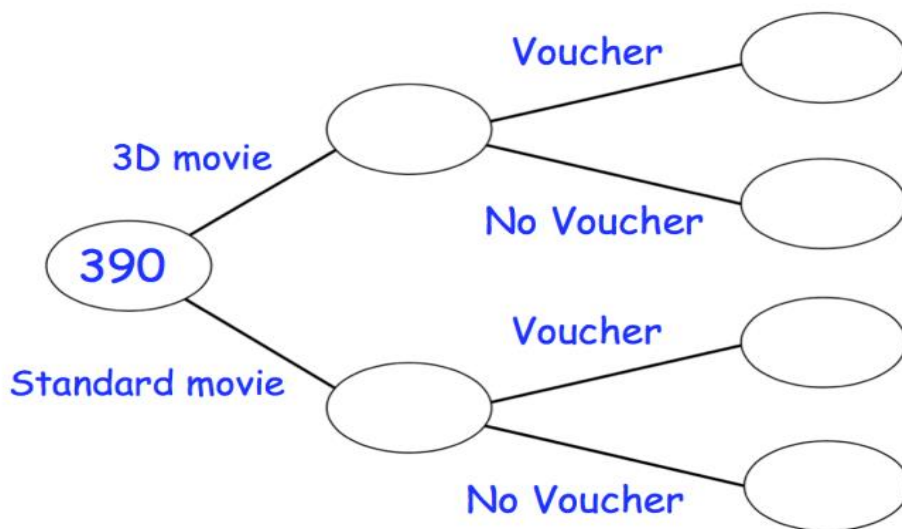
A standard movie ticket that costs £7.00

A 3-D movie ticket that costs £9.00

Some customers also have vouchers that entitle them to 10% off their ticket price.

110 customers bought tickets for 3D movies.

84 customers used a voucher.

237 of the customers who went to see a standard movie did **not** use a voucher.

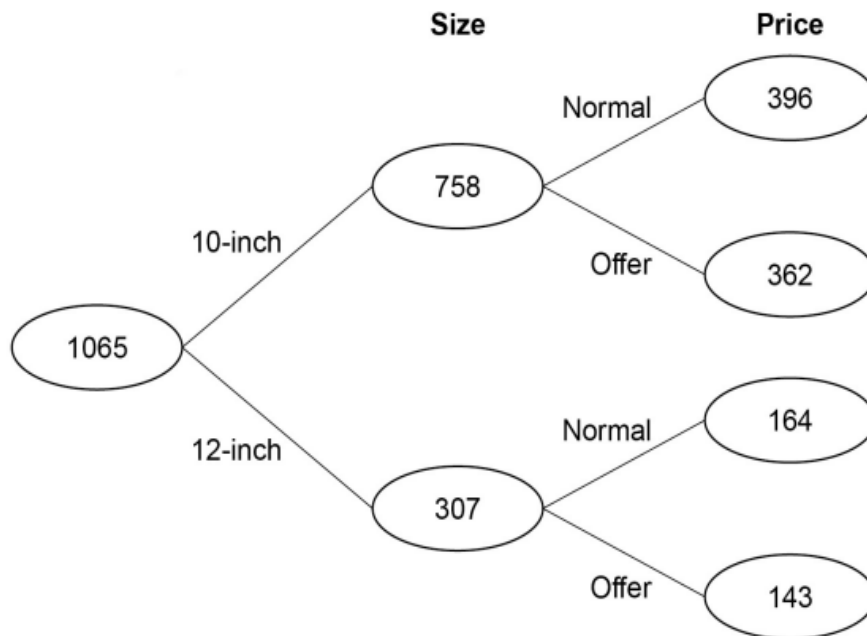Work out how much money the cinema made that evening through ticket sales.

[6 marks]

(Calculator 12th June 2018)

A takeaway sells 10-inch pizzas and 12-inch pizzas.

Here is some information about the numbers sold in two weeks.

Week 1

10-inch	512
12-inch	231
Total	743

Week 2

(a) In each week a proportion of the pizzas sold were 10-inch.

In which week was this proportion greater?
Show working to support your answer.

[2 marks]

_____

_____

_____

Answer _____

(b) The table shows the profit or loss the takeaway makes on each pizza.

	Normal price	**Offer price**
10-inch	£3.74 profit	51p loss
12-inch	£5.29 profit	4p loss

In week 1 the total profit was £1895.55

At the end of week 1 the takeaway spent £175 on adverts.

Was the **increase** in profit in week 2 more than the cost of the adverts?

You **must** show your working.

[4 marks]

_____
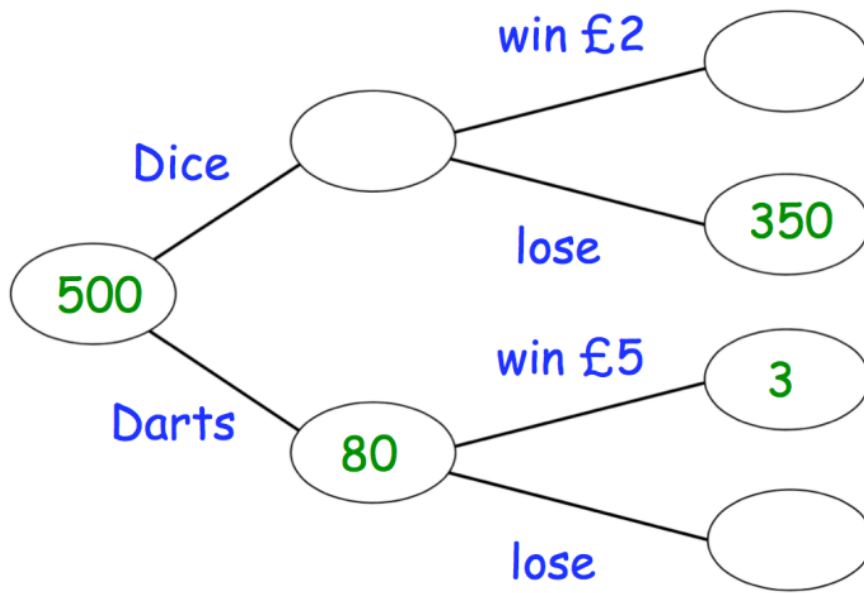
_____

_____

_____

_____

_____

Answer _____

Barry runs a game at a school fayre.

Players can either try to roll a 6 on a dice or try to hit the bullseye with a dart.
Each player pays some money and then chooses to either roll the dice or throw the dart.
If a player rolls a 6, they win £2.
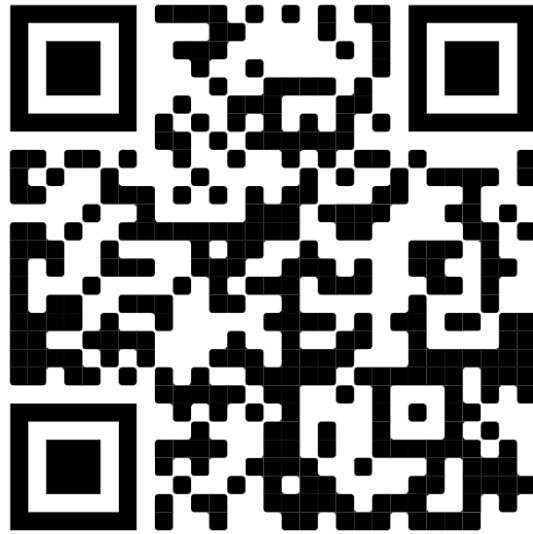If a player hits the bullseye, they win £5.

Altogether Barry makes £145 profit from the game.

How much does it cost to play Barry's game?   **[5marks]**

_____

_____

_____

Answer _____

QR Links for Learning Resources and Extra Practice

Tree Diagrams

Notes

_____

_____

_____

_____
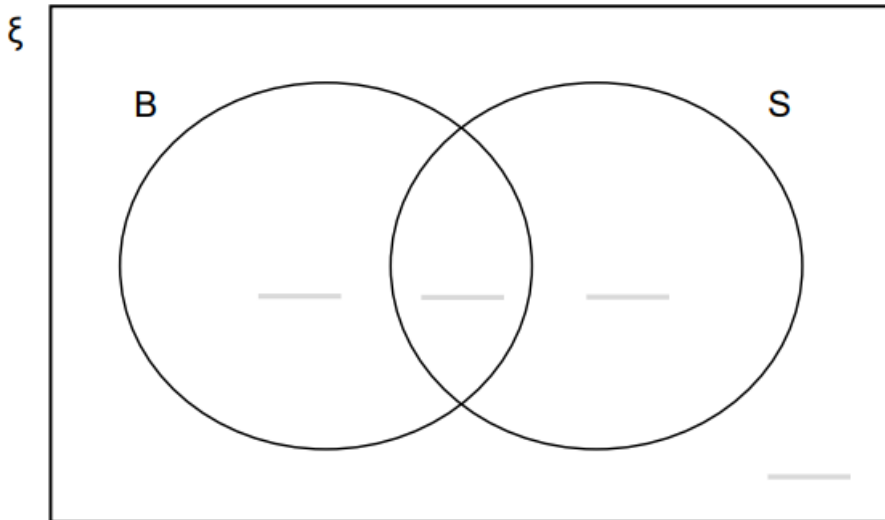
_____

Non-Calculator

Grade

(Maths Genie)

The Venn Diagram below shows information about 200 students.

Each of the students was asked if they have any brothers or sisters.

$\frac{3}{8}$ of the students had brothers and sisters.

In total 105 students had sisters.

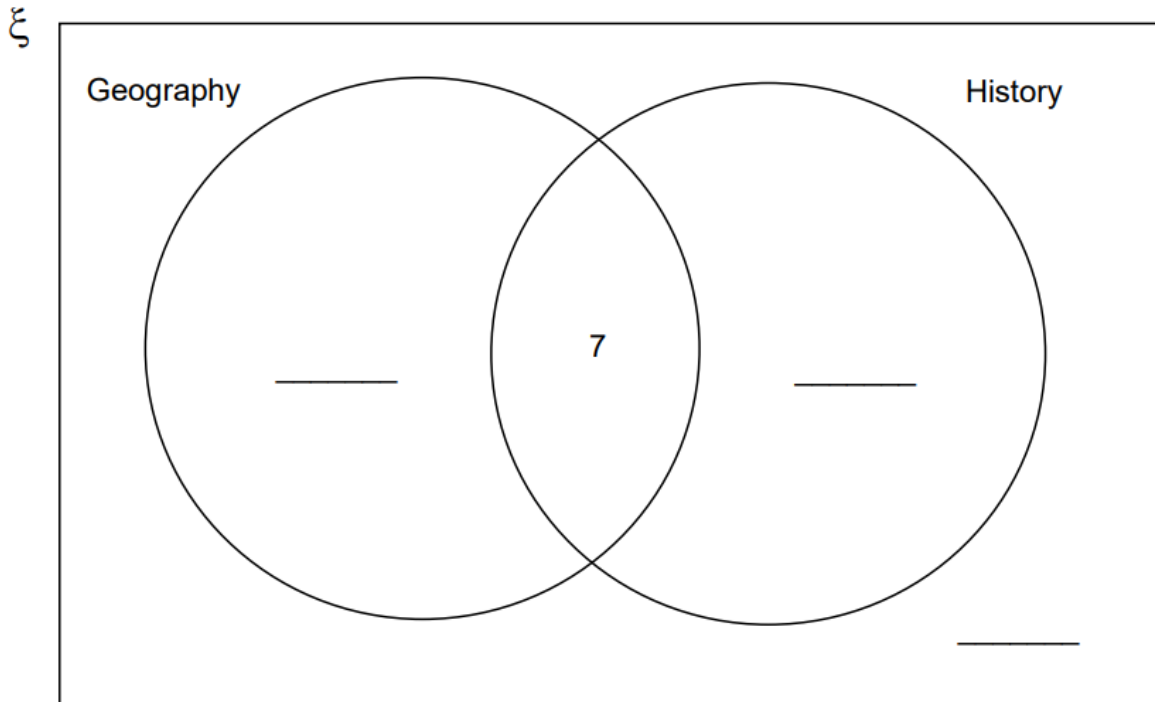The number of students with brothers was 15 less than the number who had sisters.

Complete the Venn Diagram

[4 marks]

_____

_____

_____

_____

50 students are asked if they study Geography or History.

The Venn diagram shows some information about their answers.

What does the number 7 on the diagram represent?

[1 mark]

_____

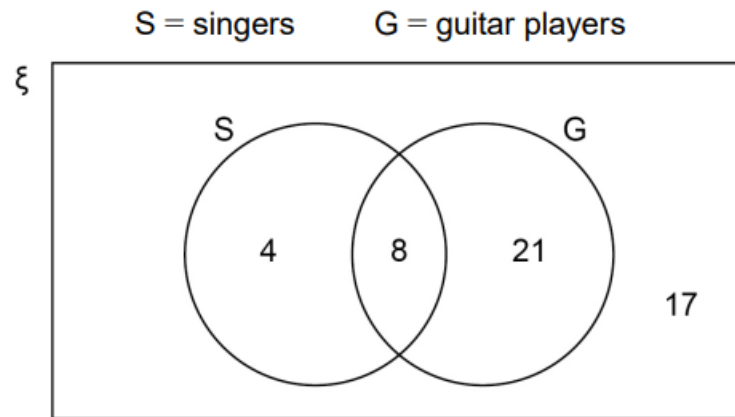_____

20 students study Geography but **not** History.

19 students study History.

Complete the Venn diagram.

[3 marks]

(May 2020)

The Venn diagram shows information about 50 people who are in bands.

S = singers   G = guitar players

(a) How many of the people are guitar players?

[1 mark]

Answer _____

(b) How many of the people are singers but **not** guitar players?

[1 mark]

Answer _____

(c) One of the people is chosen at random.

Write down the probability that the person is

  not a singer

  and

  not a guitar player.
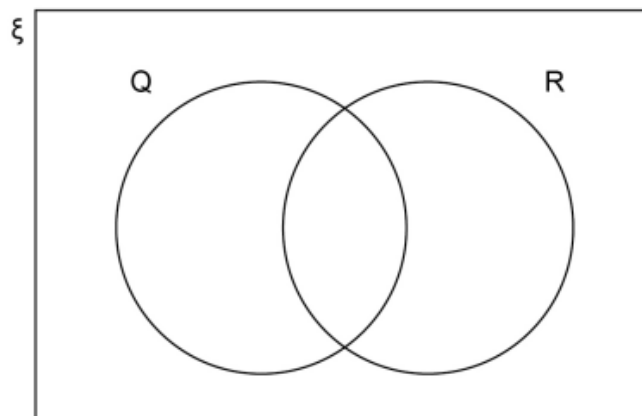
[1 mark]

Answer _____

Here are five shapes, A to E.

A	Parallelogram
B	Regular pentagon
C	Rhombus
D	Scalene triangle
E	Trapezium

In the Venn diagram,

    ξ is the set of all shapes

    Q is the set of quadrilaterals

    R is the set of shapes which **always** have rotational symmetry.

Complete the Venn diagram with the letters A to E.
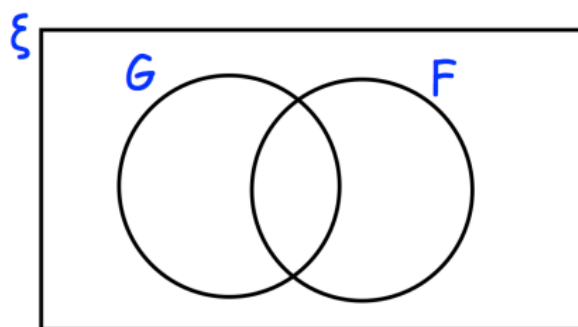
[3 marks]

(Corbett Maths)

There are 80 students in year 11.

9 students study French and German.
35 students only study French
2 students do not study French or German.

(a) Complete the Venn diagram

[2 marks]

(b) Work out how many students study only German.

[1 mark]

_____

_____

_____

_____

_____

(November 2017)

In a tennis tournament,

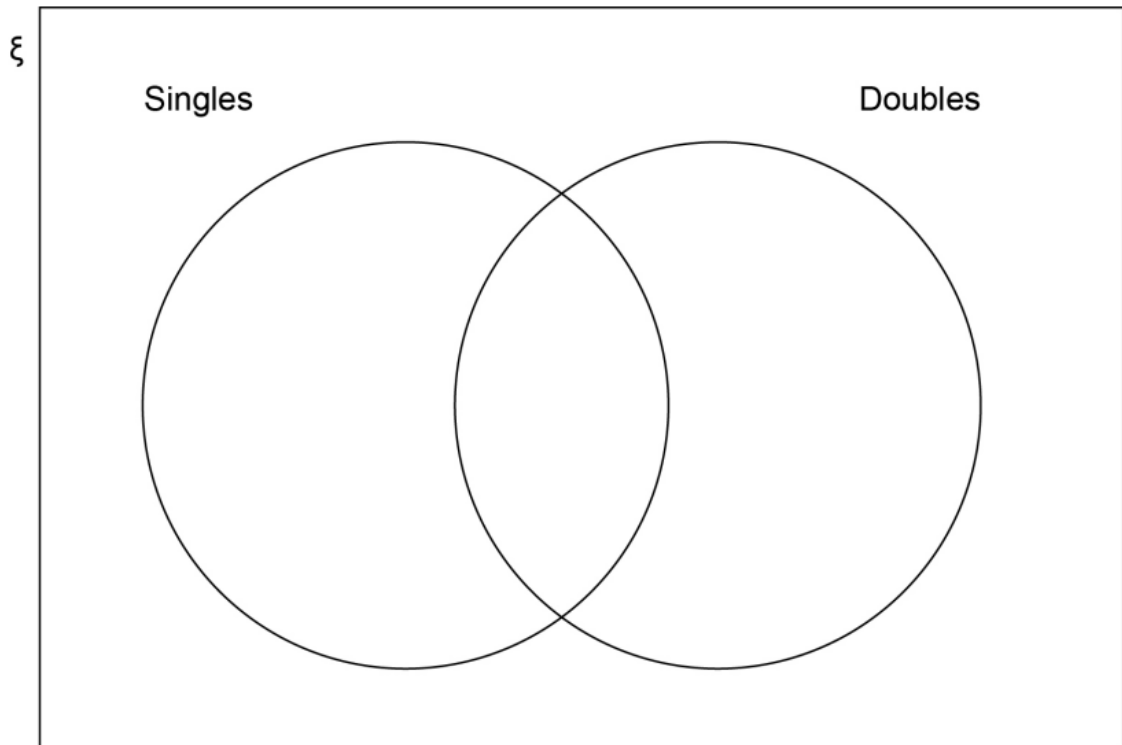98 players took part in the singles only

34 players took part in the doubles only

twice as many players took part in the singles as took part in the doubles.

How many players took part in both the singles **and** the doubles?
You may use the Venn diagram to help you.

[4 marks]

ξ

Singles   Doubles

Answer _____

(September 2016)
 (Specimen)

During Year 10 a school runs a trip to Austria and a trip to France.

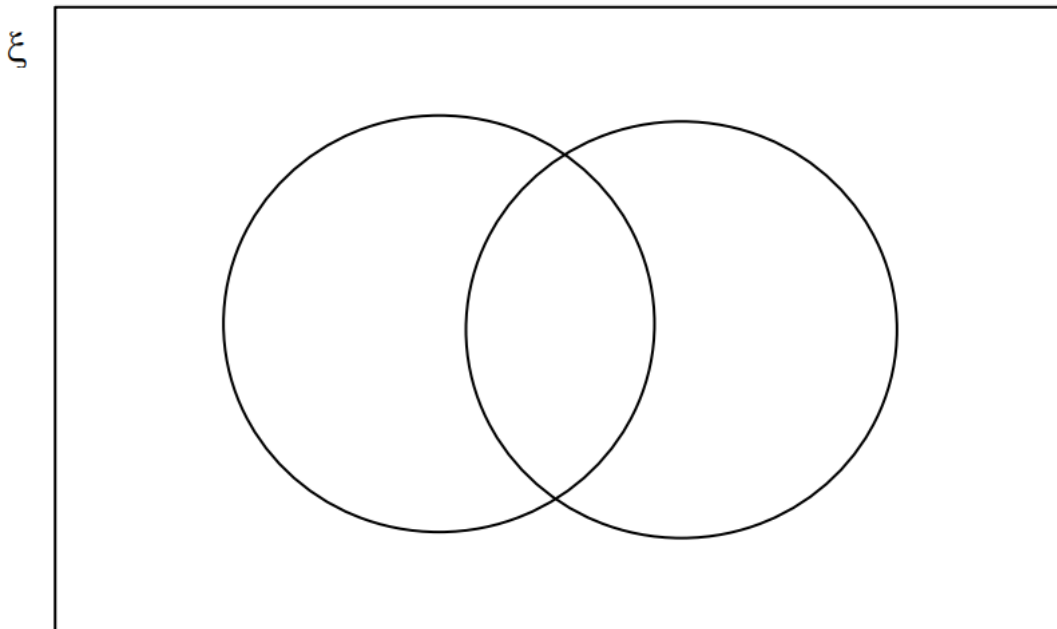63 students go to Austria.

89 students go to France.

15 students go to both Austria and France.

54 students do **not** go on either trip.

How many students are there in Year 10?

You may use the Venn diagram to help you.
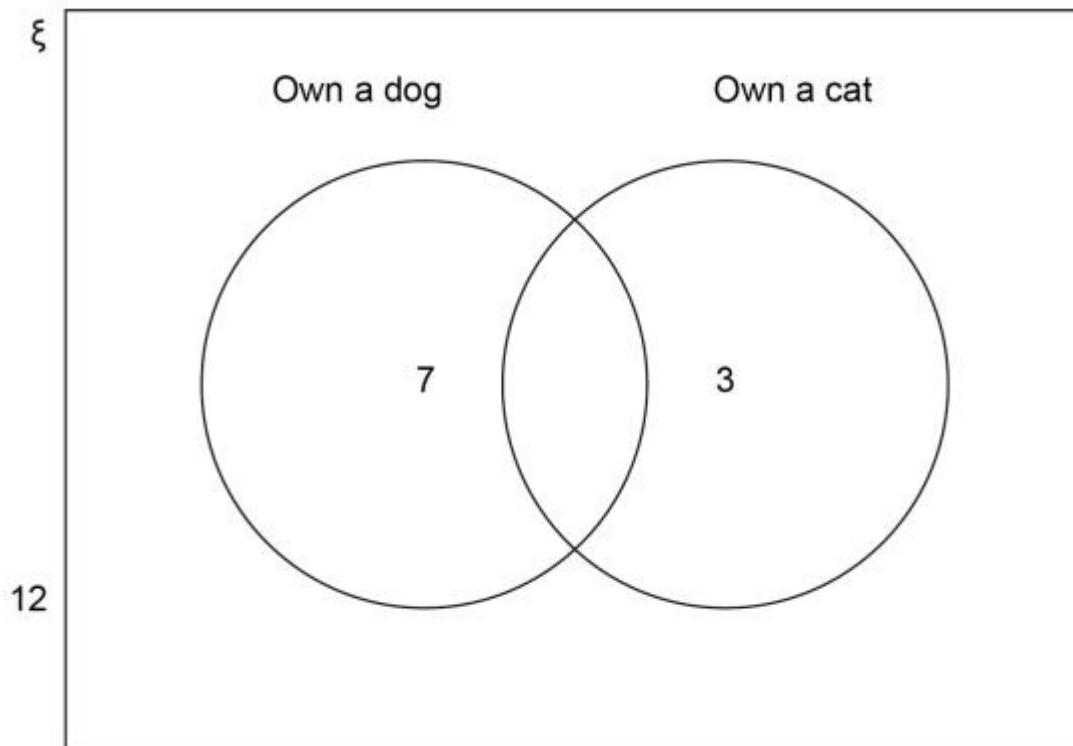
[3 marks]

ξ

Answer _____

In a group of 20 people

7 own a dog

3 own a cat

12 do not own a dog or a cat.

Aidan shows this information on a Venn diagram.

Make **two** criticisms of his Venn diagram.

[2 marks]

Criticism 1 _____

_____

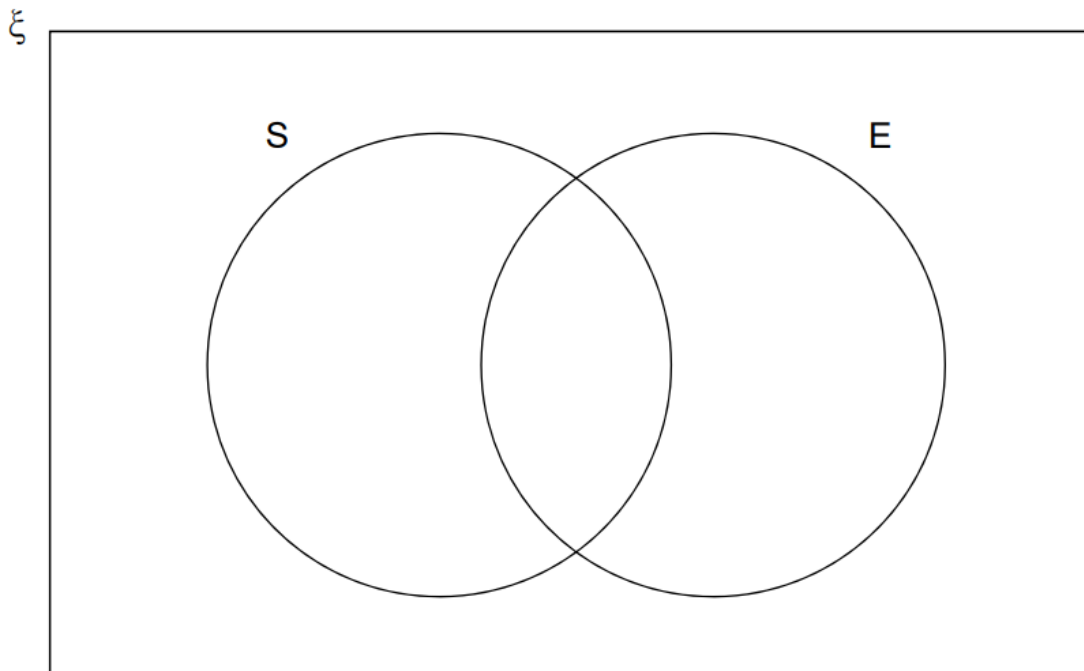_____

Criticism 2 _____

_____

_____

$$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$$

S = square numbers

E = even numbers

Complete the Venn diagram.

[3 marks]

One of the numbers is chosen at random.

Write down P (S ∩ E)
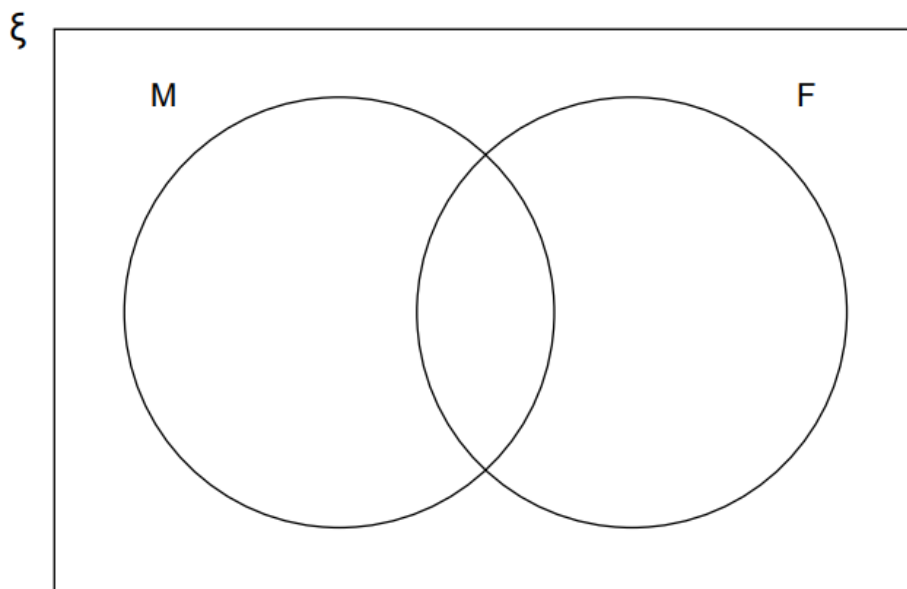
[1 mark]

Answer _____

In the Venn diagram

ξ = Whole numbers from 1 to 12 inclusive

M = Multiples of 3

F = Factors of 24

ξ

M   F

Put the numbers from 1 to 12 in the Venn diagram.

[3 marks]

Complete the table to show **how many** numbers are in each part of the Venn diagram.

[3 marks]

	Multiples of 3	Not multiples of 3	Totals
Factors of 24			
Not factors of 24			
Totals			12

QR Links for Learning Resources and Extra Practice

Venn Diagram

Notes

_____

_____

_____

_____

_____

_____

Non-Calculator

Grade 3 - 4

(May 2018)

2 people working at the same rate will take 6 hours to paint a room.

(a) Assuming that they **all** work at this rate,

how long will it take 3 people to paint the room?

[2 marks]

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____ hours

(b) In fact, the **third** person works at a faster rate.

How does this affect the time to paint the room?

[1 mark]

_____

_____

(November 2018)

The cost of 3 calendars is £18

Work out the cost of 5 calendars.

[2 marks]

_____

_____

Answer £_____

(November 2019)

$V = \dfrac{k}{H}$ where k is a constant.

Which **two** statements are correct?

Tick **two** boxes.

[1 mark]

☐ V is directly proportional to H

☐ V is inversely proportional to H

☐ V is directly proportional to $\dfrac{1}{H}$

☐ V is inversely proportional to $\dfrac{1}{H}$

(November 2019)

A college has
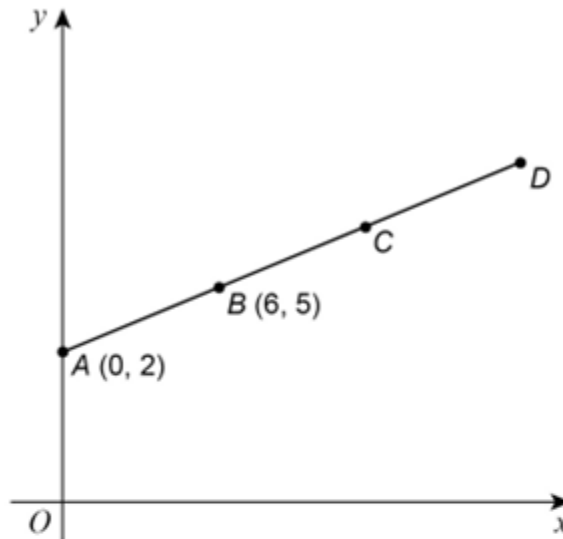 a total of 105 teachers
 19 more female teachers than male teachers.

What proportion of the teachers are female?

[3 marks]

_____

_____

_____

_____

_____

Answer _____

A (0, 2) and B (6, 5) are points on the straight line $ABCD$.

Not drawn
accurately

$AB = BC = CD$

Work out the coordinates of D.

[3 marks]

_____

_____

_____

_____

_____

Answer   (_____ , _____)

Donna uses this recipe for Chilli Con Carne.

<div align="center">

Serves 6 people
1 kilogram of mince
400 grams of tomatoes
3 chillies
600 grams of kidney beans

</div>

Donna is going to use this recipe to make Chilli Con Carne for 15 people.
Work out how many grams of mince she needs.

[2 marks]

_____

_____

_____

_____

_____

Answer _____

(May 2018)

y is inversely proportional to x.

Complete the table.

[2 marks]

x	12	6	
y		4	8

Calculator

Grade 3 - 4

(November 2017)

2.5 kg of carrots cost £1.70

Work out the cost of 3.25 kg of carrots.

[3 marks]

_____

_____

_____

_____

Answer £ _____

A farmer has 580 eggs to put into boxes.

The boxes come in three sizes.

20 eggs   12 eggs   6 eggs

He wants

    at least 10 boxes of 20 eggs

    at least 15 boxes of 12 eggs

    at least 25 boxes of 6 eggs.

The farmer fills 54 boxes with the 580 eggs.

Show how he does this.

[5 marks]

_____

_____

_____

_____

_____

Answer _____ boxes of 20 eggs

        _____ boxes of 12 eggs

        _____ boxes of 6 eggs

Here is a list of ingredients needed to make 6 pancakes.

Flour	120 grams
Eggs	2
Milk	210 millilitres

Complete the list of ingredients needed to make 9 pancakes.

[3 marks]

Flour	_____
Eggs	_____
Milk	_____

(June 2018)

Theo starts with savings of £18

James starts with no savings.

Each week from now,

Theo will save £4.50   and   James will save £4

In how many weeks will Theo and James have savings in the ratio 15 : 8 ?

[3 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

(November 2018)

Each side of a square is made 3 times as long.

What happens to the perimeter?

Circle your answer.

[1 mark]

× 3   × 6   × 9   × 12

(November 2019)

The cost of a taxi journey is

£3   plus   £2 per mile.

Circle the cost of a journey of 6 miles.

[1 mark]

£5   £12   £15   £30

(November 2018)

At a café,

2 teas and 1 coffee cost £3.40

1 tea and 4 coffees cost £7.30

Work out the cost of 1 tea and the cost of 1 coffee.

[4 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

Tea _____

Coffee _____

A drink is made by adding water to juice.

Instructions
Add an amount of water that is between 2 times and 3 times the amount of juice

Rana has 120 ml of juice.

She adds some water.

She has now made 450 ml of the drink.

Has Rana followed the instructions?

You **must** show your working.

[3 marks]

_____

_____

_____

_____

_____

_____

_____

(November 2019)

The cost of 5 kg of potatoes is £3.20

The cost of $\frac{1}{2}$ kg of carrots is 29p

Work out the **total** cost of 12 kg of potatoes and $1\frac{1}{2}$ kg of carrots.

[3 marks]

_____

_____

_____

_____

_____

Answer £_____

(November 2017)

y is inversely proportional to x and k is a constant.

Circle the correct equation.

[1 mark]

$y = \dfrac{k}{x}$ $\qquad\qquad$ $y = kx$ $\qquad\qquad$ $y = \dfrac{x}{k}$ $\qquad\qquad$ $y = x - k$

Josh downloads album A.

    A has 11 tracks.

    Each track on A costs the same.

    The total cost of downloading A is £8.80

Josh also downloads album B.

B has 14 tracks.

(a)   Work out the total cost of downloading B.

    Assume each track costs the same as a track on A.

[3 marks]

_____

_____

_____

       Answer £_____

(b)   In fact, compared to the cost of each track on A

    the cost of 6 tracks on B is **more** by 5p each

    the cost of 8 tracks on B is **less** by 5p each.

What does this tell you about your answer to part (a)?
Tick **one** box.

☐   The total cost is **less** than my answer to part (a)

☐   The total cost is **more** than my answer to part (a)

☐   The total cost is **the same** as my answer to part (a)

Give a reason for your decision.

[2 marks]

_____

_____

QR Links for Learning Resources and Extra Practice
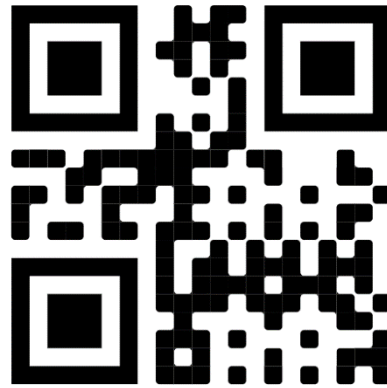
Proportion   Inverse Proportion

Notes

_____

_____

_____

_____

_____

Percentage Change

Non-Calculator

Grade 3 - 4

(November 2018)

Work out the percentage increase from 80 to 280

[3 marks]

_____

_____

_____

_____

_____

_____

Answer _____ %

(Practice Set A papers)

The population of an island has decreased by 40% over 50 years.
The population in 2018 was 360.

Work out the population of the island in 1968

[2 marks]

_____

_____

_____

_____

_____

_____

Answer _____

Calculator

Grade 3 - 4

(November 2018)

Doug owes an amount of 600 pounds.
he wants to pay this amount in five months.
he says,

"Each month, I will pay back 20% of the amount I still owe."

Show working to check if this method is correct

[3 marks]

_____

_____

_____

_____

_____

_____

(November 2018)

The company sells three houses.
The prices are £185,000, £239,000 and £136,000
The company ends 2% Commission on each house.

In total, how much Commission does the company earn on these three houses?

[3 marks]

Answer £_____

(June 2019)

Mia wants to borrow £6000 and repay it, with interest, after two years.
She sees two offers for loans.

Offer 1	Offer 2
Compound interest	Compound interest
3% per year	First year 1%
	Second year 5%

Mia says,

"I will pay back the same amount because the average of 1% and 5% is 3%"

Is she correct ?

You **must** show your working.

[3 marks]

_____

_____

_____

_____

(June 2020)

Alex and Bev sat six tests, each with 50 marks.
The table shows their mean percentages after five tests.

Alex	60%
Bev	52%

After all six tests, their mean percentages were equal.

In the sixth test, Alex scored 24 out of 50

Work out Bev's score, out of 50, in the 6th test

[4 marks]

_____

_____

_____

_____

_____

_____

Answer _____ out of 50

(November 2017)

A voucher takes 15% off the bill.

After using the voucher, the bill for a meal is £27.20

How much was the bill before using the voucher?

[3 marks]

_____

_____

_____

_____

_____

_____

Answer £ _____

(June 2018)

The table shows information about the population of a city.

Population in 2001	Population in 2011
420 000	480 000

 Liam claim,

     "From 2011 to 2021 the population of the city were increase the same percentage as from 2001 to 2011"

He works out,

population increase from 2001 to 2011 = 480,000 – 420,000

= 60,000

population in 2021 = 480,000 + 60,000

= 540,000

Does the population of 540,000 match his claim?

You must show your working.

[3 marks]

_____

_____

_____

_____

(June 2020)

A rectangle as length 60cm and width 40 cm.

Not drawn
accurately

40 cm

60 cm
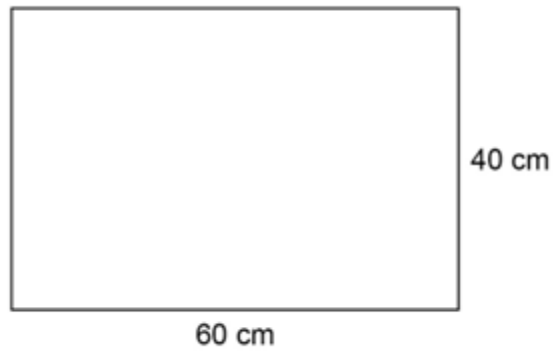
The length decreases by 15%

The width decreases by 10%

Sue says,

"The perimeter decreases by 25% because 15% + 10% is 25%"

Is she correct?

You must show calculations to support your answer.

[4 marks]

_____

_____

_____

_____

_____

_____

(November 2019)

The value of a house is 120,000 pounds
The value is expected to increase by 5% each year.

Workout the expected value after four years.
Give your answer to two significant figures.

You must show your working.

[4 marks]

_____

_____

_____

_____

_____

Answer £_____

(June 2018)

The cost of a ticket increases by 10% to £19.25

Workout the original cost.

[3 marks]

_____

_____

_____

_____

_____

Answer £_____

(June 2018)

Investment A   Save £150 per month for 2 years.
                 2.5% interest is added to the total amount saved.

Investment B   Invest £3,500
                 Compound interest is added at 3% per year.

After two years, how much more is investment B worth than investment A?

_____

_____

_____

_____

Answer £_____

QR Links for Learning Resources and Extra Practice
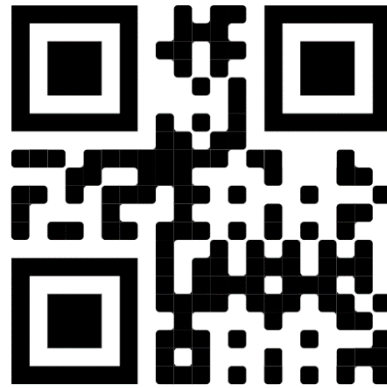
Percentage Change   Compound Interest & Depreciation

Notes

_____

_____

_____

_____

_____

Rearrange Formula

Non – Calculator

(May 2017)

A football team has P points.

$$P = 3W + D$$

W is the number of wins

D is the number of draws

(a) A team has 6 wins and 2 draws.

How many points does the team have?

[1 mark]

_____

_____

Answer _____

(b) After 33 games a different team has 53 points.

11 games were draws.

How many games has this team **lost**?

[4 marks]

_____

_____

_____

_____

_____

_____

Answer _____

This formula converts temperature in degrees Fahrenheit (F) to kelvin (K)

$$K = \frac{5}{9}(F - 32) + 273$$

A pottery oven is heated to 2192 degrees Fahrenheit.

Work out this temperature in kelvin.

[3 marks]

Answer _____ kelvin

(November 2017)

Solve $x - 3 = 14$

[1 mark]

_____

_____

$x =$ _____

Solve $5y = 45$

[1 mark]

_____

_____

$y =$ _____

Solve $8 + w = 6$

[1 mark]

_____

_____

$w =$ _____

(May 2017)

Solve $x - 3 = 0$

Circle your answer.

[1 mark]

$x = -3$ $x = 0$ $x = \dfrac{1}{3}$ $x = 3$

(May 2017)

x km/h = y mph

Use   8 km/h = 5 mph   to write a formula for y in terms of x.

[2 marks]

_____

_____

_____

Answer _____

(May 2020)

Solve $6x - 11 = 13$

[2 marks]

_____

_____

_____

$x =$ _____

(November 2019)

Solve $8x + 7 = 2x + 10$

[3 marks]

_____

_____

_____

_____

_____

$x =$ _____

(May 2020)

Rearrange $c = \dfrac{d + 2}{3}$ to make d the subject.

[2 marks]

_____

_____

_____

_____

Answer _____

(November 2019)

Given that $a \times 60 = b$ work out the value of $\dfrac{4b}{a}$

[2 marks]

_____

_____

_____

Answer _____

Calculator

Choose **one** of the following to make a correct statement each time.

[4 marks]

	is less than	is equal to	is greater than

When $a = 3$ $4a$ _____ $a + 7$

When $b = 8$ $2b - 6$ _____ $18 - b$

When $c = 0.5$ $3c$ _____ $c + 1$

When $d = -1$ d _____ d^2

The value of A is double the value of B.

Circle the correct formula.

[1 mark]

$$A = B + 2 \qquad A = 2B \qquad A = \frac{B}{2} \qquad A = B^2$$

(November 2019)

$c = 250 - 16^2$

$d = \dfrac{18 \times 14}{-28}$

Work out the value of $c \times d$

[2 marks]

_____

_____

_____

_____

Answer _____

(June 2019)

Solve $\quad x - 8 = 5$

Circle your answer.

[1 mark]

$x = -13$ $\qquad$ $x = -3$ $\qquad$ $x = 3$ $\qquad$ $x = 13$

(June 2018)

Rearrange $e = 2f$ to make f the subject.

Circle your answer.

[1 mark]

$$f = 2e \qquad f = \frac{2}{e} \qquad f = e - 2 \qquad f = \frac{e}{2}$$

6) (June 2017)

Solve $4x - 3 = 14$

[2 marks]

_____

_____

_____

$x =$ _____

(November 2018)

Solve $\dfrac{m}{6} = 12$

[1 mark]

_____

_____

$m =$ _____

(November 2017)

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

[3 marks]

_____

_____

_____

_____

_____

$x =$ _____

(June 2017)

Rearrange $y = \dfrac{x}{3} + 9$ to make x the subject.

[2 marks]

_____

_____

_____

Answer _____

(November 2017)

Rearrange $v = u + at$ to make t the subject of the formula.

[2 marks]

_____

_____

_____

_____

Answer _____

(June 2018)

Here is a formula for the amount of water needed to cook rice.

$$w = 1.5r + 0.5$$

w is the number of cups of water needed

r is the number of cups of rice to be cooked

How many cups of water are needed to cook 7 cups of rice?

[2 marks]

Answer _____

How many cups of rice can be cooked with 20 cups of water?

[3 marks]

Answer _____

(November 2017)

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Work out the **force** when the pressure is 24 N/m^2 and the area is 3 m^2
Circle your answer.

[1 mark]

0.125 N 　　　　　 8 N 　　　　　 27 N 　　　　　 72 N

(November 2018)

A company uses this formula to work out the cost, £A, of a taxi ride.

$$A = 4 + 1.8m + b$$

£4 is a fixed charge

m is the number of miles travelled

£b is a charge for booking online

(a)　 Clare books a taxi online and travels 8 miles.
　　　 She pays £20 altogether.

　　　 How much is the charge for booking online?

[3 marks]

_____

_____

_____

_____

_____

_____

　　　　Answer　£_____

(b) A different company

               has a fixed charge of £3

               charges £1.90 per mile

               has no charge for booking online.

Write a formula for the cost, £C, of a taxi ride with this company.

[1 mark]

Answer _____

(November 2017)

Here is a formula to convert degrees Celsius (°C) to degrees Fahrenheit (°F).

$$F = 1.8C + 32$$

F is the number of degrees Fahrenheit

C is the number of degrees Celsius

(a) Show that $-40°C = -40°F$

[2 marks]

(b) The temperature is −15°C

Nick says,

"Because the temperature is negative in Celsius, it **must** be negative in Fahrenheit."

Is he correct?

You **must** show your working.

[1 mark]

_____

_____

_____

_____

Answer _____

(November 2019)

Rearrange $m = p + 2$ to make p the subject.

[1 mark]

_____

_____

Answer _____

(June 2019)

Solve $x^2 = 196$

[2 marks]

_____

_____

_____

Answer _____

(November 2019)

Solve $x + 17 = 12$

[1 mark]

_____

$x =$ _____

Solve $\dfrac{w}{4} = 12$

[1 mark]

_____

_____

$w =$ _____

(June 2019)

(a) Solve $7x = 56$

[1 mark]

_____

$x =$ _____

(b) Solve $25 - y = 18$

[1 mark]

_____

$y =$ _____

(June 2018)

Solve $3x = 2$

Circle your answer.

[1 mark]

$x = -1$ $\qquad$ $x = \dfrac{2}{3}$ $\qquad$ $x = \dfrac{3}{2}$ $\qquad$ $x = 6$

(June 2018)

Here is a formula.

$$T = n^2 - \frac{12}{n}$$

Work out T when $n = 5$

[1 mark]

_____

_____

_____

Answer _____

(June 2020)

Bobbi has these notes.

Note	Number of notes
£5	3
£10	x

The total value of her notes is £T

Write a formula for T in terms of x.

[2 marks]

_____

_____

Answer _____

QR Links for Learning Resources and Extra Practice

Rearrange Formula

Notes

_____

_____

_____

_____

_____

Graph and Charts

Non-Calculator

Grade 1

(May 2020)

Key: represents 40 people

Adults	
Students	
Children	

Here is some information, by ticket type, about the number of people visiting a cinema one week.

(a) How many children visited the cinema?

[1 mark]

_____

Answer _____

(b) How many more students than adults visited the cinema?

[2 marks]

_____

Answer _____

Grade 2

(c) A bar chart is drawn to show the number of people visiting the cinema one month.

Ticket type	Number of people
Adults	1600
Students	3000
Children	1800

People visiting the cinema
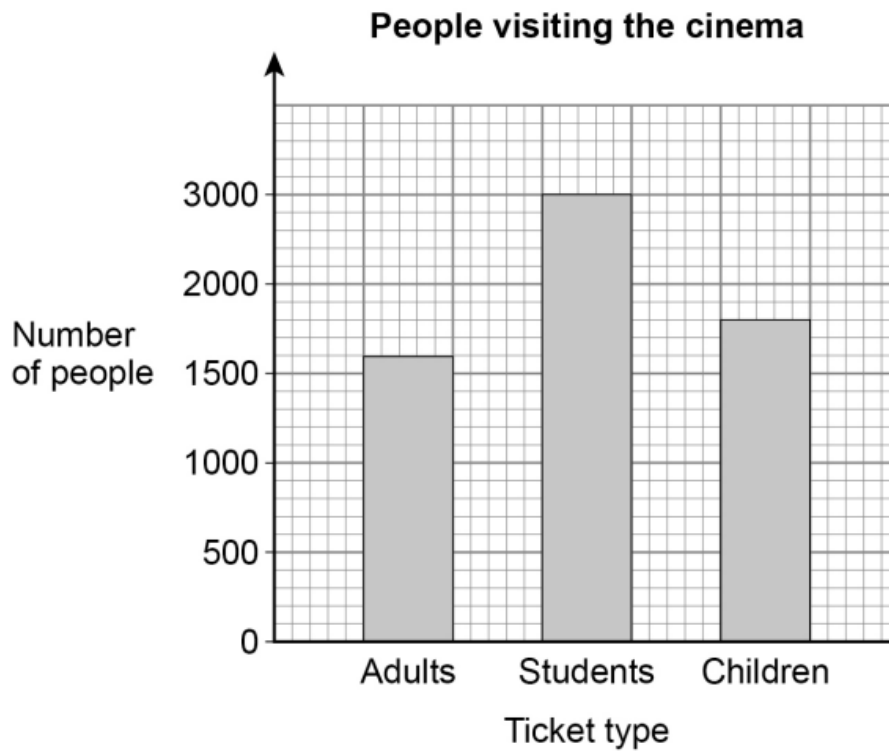
Give one criticism of the bar chart.

[1 mark]

_____

Answer _____

(Nov 2019)

The composite bar chart shows the number of students in some classes.
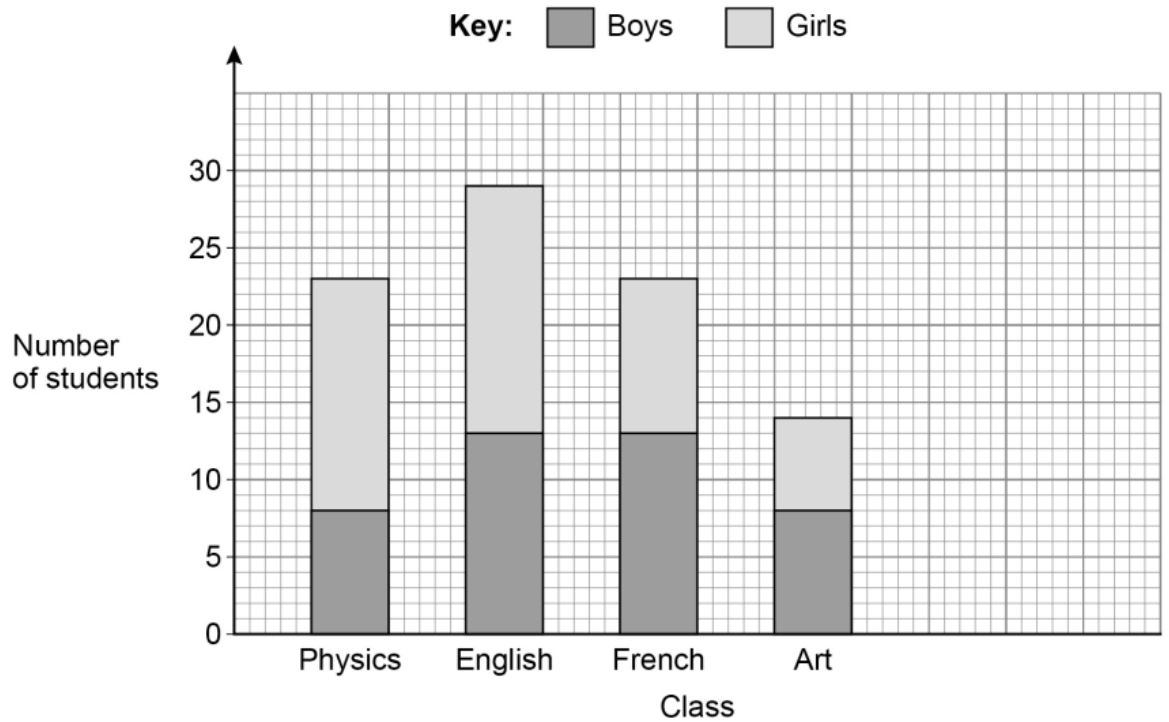
a.   How many boys are in the Physics class?

[1 mark]

Answer _____

b.   How many girls are in the English class?

[1 mark]

_____

Answer _____

c.   Which two classes have the same total number of students?

[1 mark]

Answer _____ and _____

(Predict 2022)

(a) Here is a bar chart showing the scores of five students in their Maths and English tests.
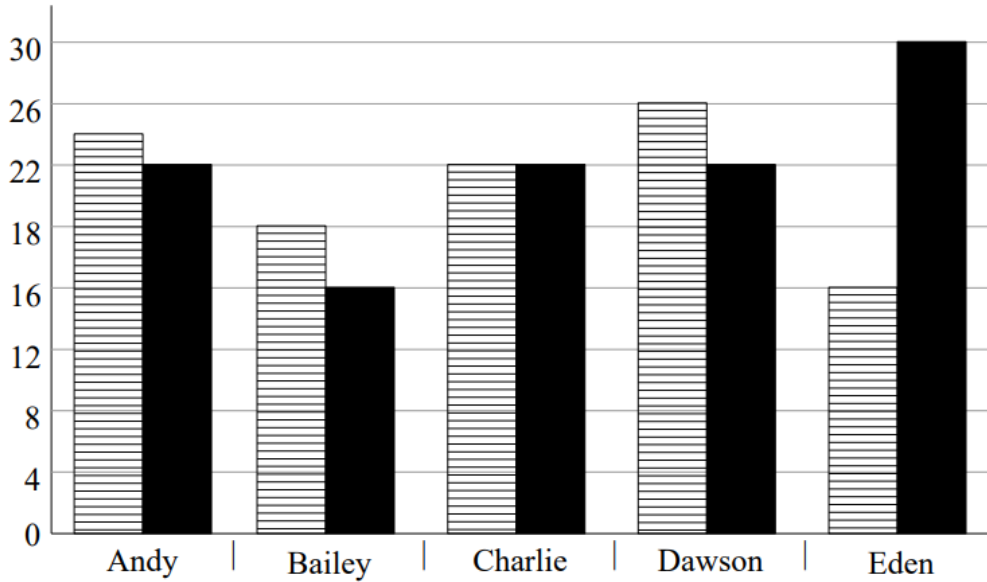
Write down two things wrong with this graph

1. _____

2. _____

(b) The pictogram gives information about the number of chocolate bars sold by a shop last week.
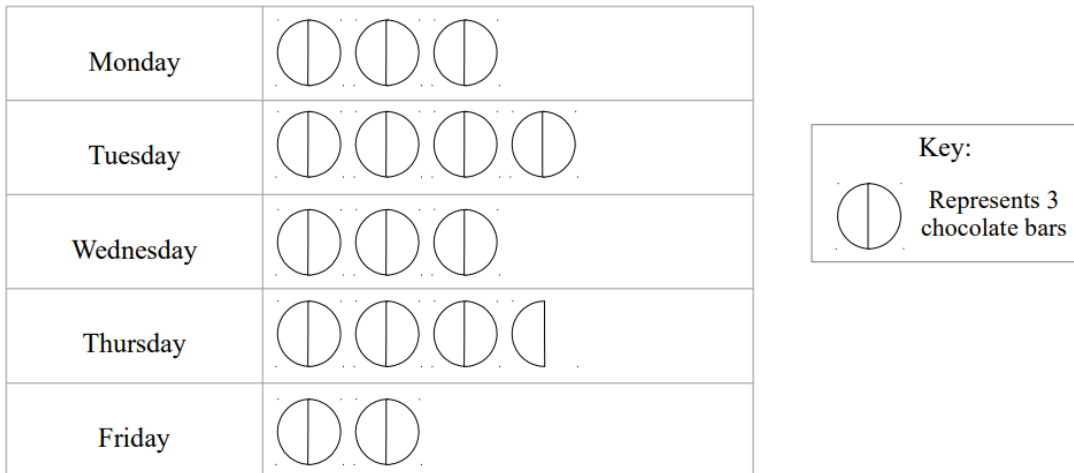
Write down one thing that is wrong with the pictogram.

_____

_____

Grade 4

(May 2020)

A and B are scatter graphs.

Graph A
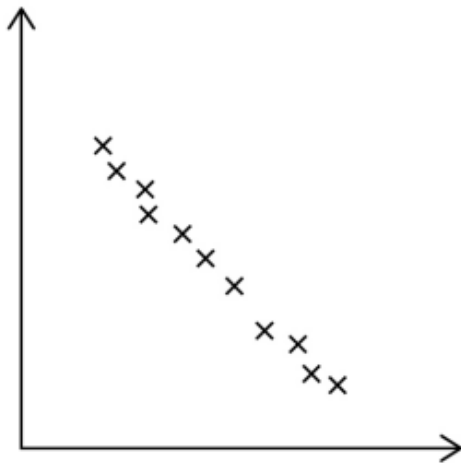
Graph B
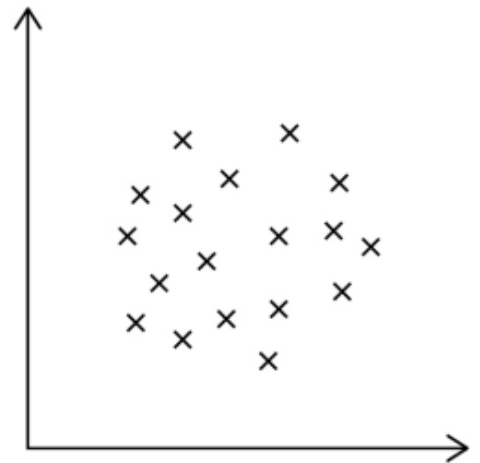
What type of correlation is shown by each graph?

Weak positive

Strong positive

Weak negative

Strong negative

No correlation

[2 marks]

Graph A _____

Graph B _____
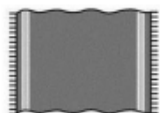
Calculator
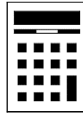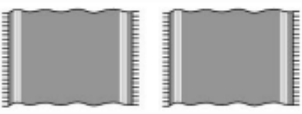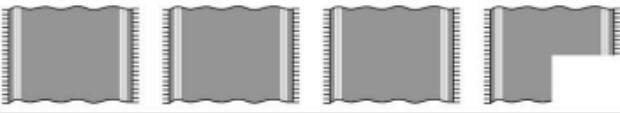
Grade 1

(Jun 2017)

A swimming pool has three changing rooms, Male, Female and Family.
The pictogram shows the number of people using each changing room during one hour.

Key: [image] represents _____ people

Male	[image][image]
Female	[image][image][image][image partial]
Family	[image]

8 people used the Male changing room.

(a) Complete the key.

[1 mark]

(b) How many people used the Female changing room?

[1 mark]

_____

_____

_____

_____

Answer _____

(Jun 2018)

Gemma has four groups of friends on a social media site.

The table shows the number of friends in each group.

Group	Number of friends
Family	8
Netball	8
School	26
Guides	11

Gemma wants a pictogram to show the information.
She has drawn the first two rows.
,
Complete the pictogram.

Key: ◯ represents _____ friends

Family	◯ ◯
Netball	◯ ◯
School	
Guides	

Remember to complete the key.

(Jun 2019)

A group of students were asked to name their favourite burger.

The pictogram shows the results.

The key is missing.

Chicken	◯ ◯ ◯ ◗
Beef	◯ ◯ ◯ ◯ ◯ ◯
Turkey	◗
Veggie	◯ ◯ ◯ ◯ ◯

40 students said Veggie.
How many students said Chicken?

[3 marks]

_____

_____

_____

_____

Answer _____

Grade 2

(Jun 2018)

On a journey, Laura sees 30 vehicles. Each vehicle is a car, a van or a lorry.

Vehicles seen
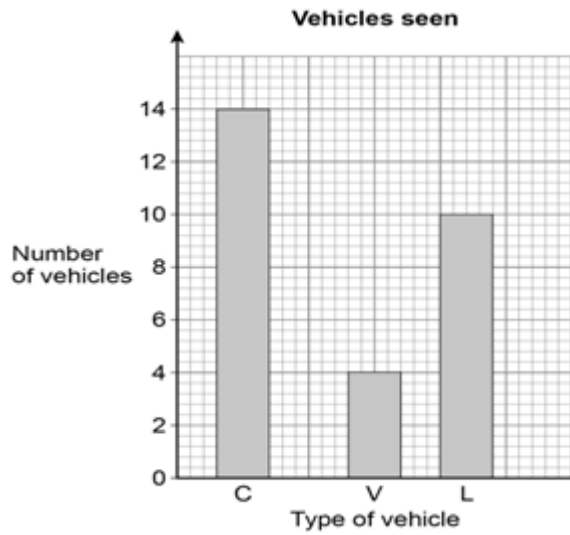
She draws this bar chart.

Make two criticisms of her bar chart.   [2 marks]

Criticism 1 _____

_____

_____

Criticism 2 _____

_____

_____

The pie chart shows information about people at a theme park. **(Grade2)**

Not drawn accurately
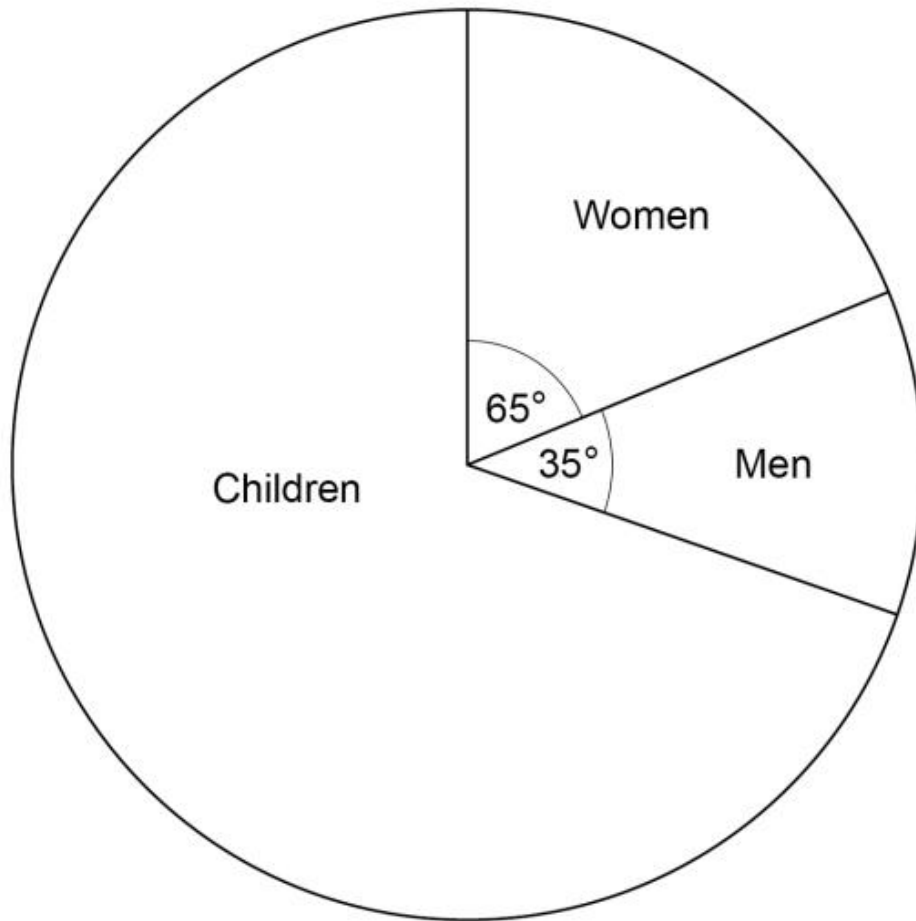
There were 450 more women than men.
Work out the number of children.

[3 marks]

Answer _____

Grade 4

(Jun 2018)

Lee sells ice creams.
The table shows the midday temperature and his sales for five days.

	Day 1	Day 2	Day 3	Day 4	Day 5
Temperature (°C)	30	26	17	22	20
Sales (£)	180	150	80	130	120

Ice cream sales and temperature
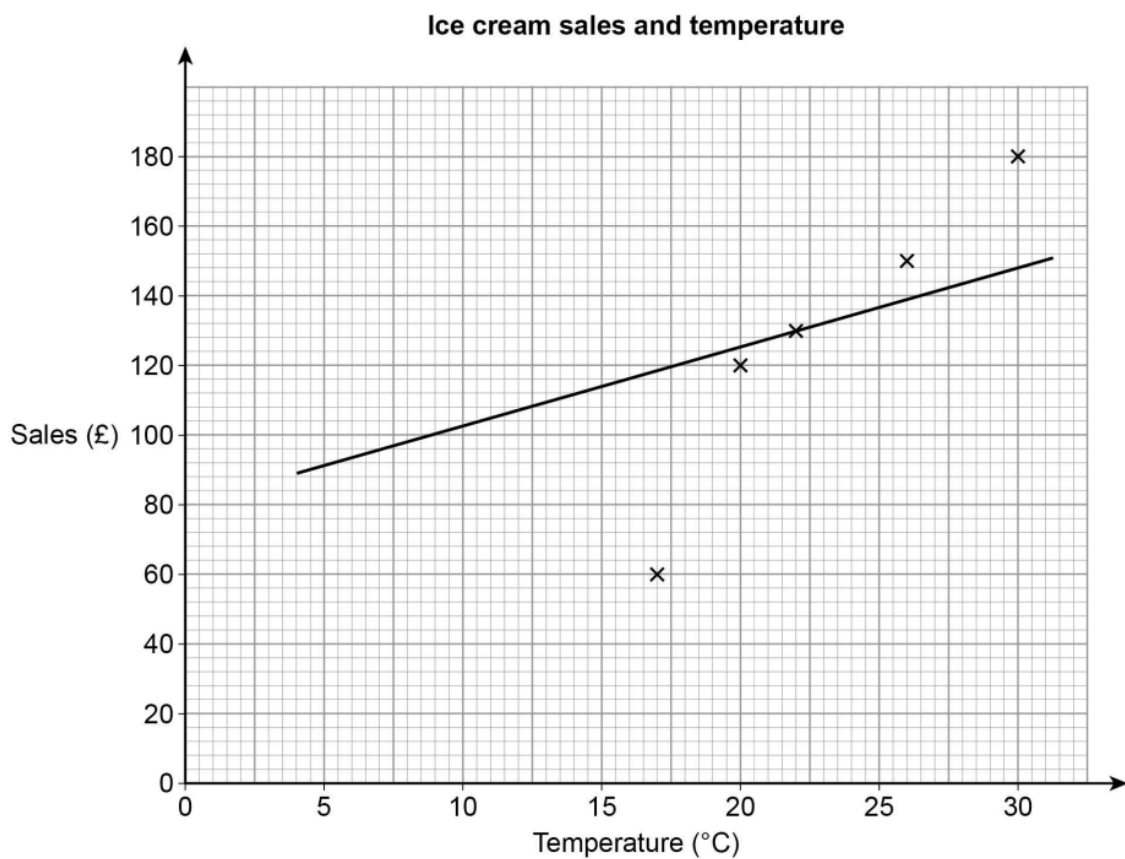
He draws this scatter graph and line of best fit.

Write down two mistakes he has made. [2 marks]

Mistake1 _____

_____

Mistake1 _____

_____

(Jun 2018)

A shop sells raincoats and umbrellas.

The scatter graph shows the monthly sales for 12 months.

Sales of raincoats and umbrellas

Sales of raincoats (£)
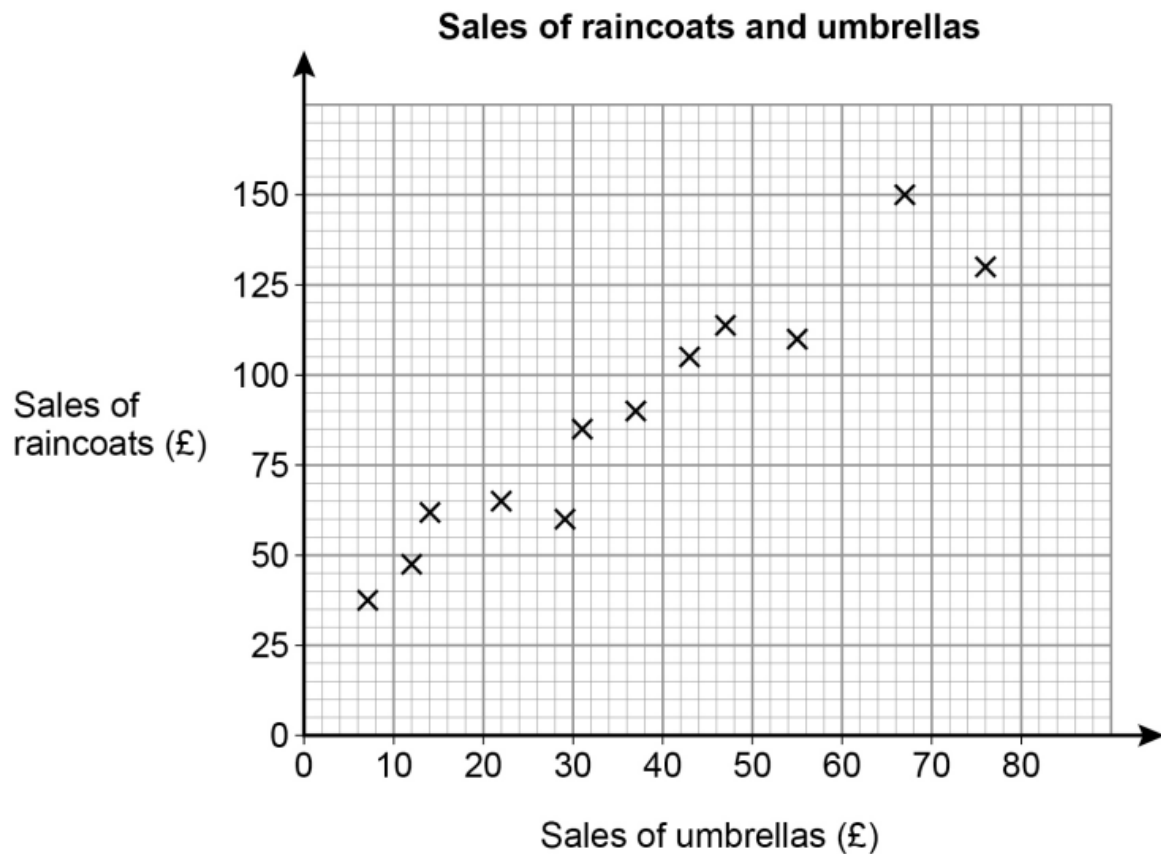
Sales of umbrellas (£)

(a) Write down the type of correlation shown by the graph.

[1 mark]

Answer _____

(b) The manager expects the sales of umbrellas next month to be £60
    Draw a line of best fit to estimate the sales of raincoats next month.

[3 marks]

Answer £ _____

(Nov 2019)

The scatter graph shows the best high jump and the best long jump for 15 boys.
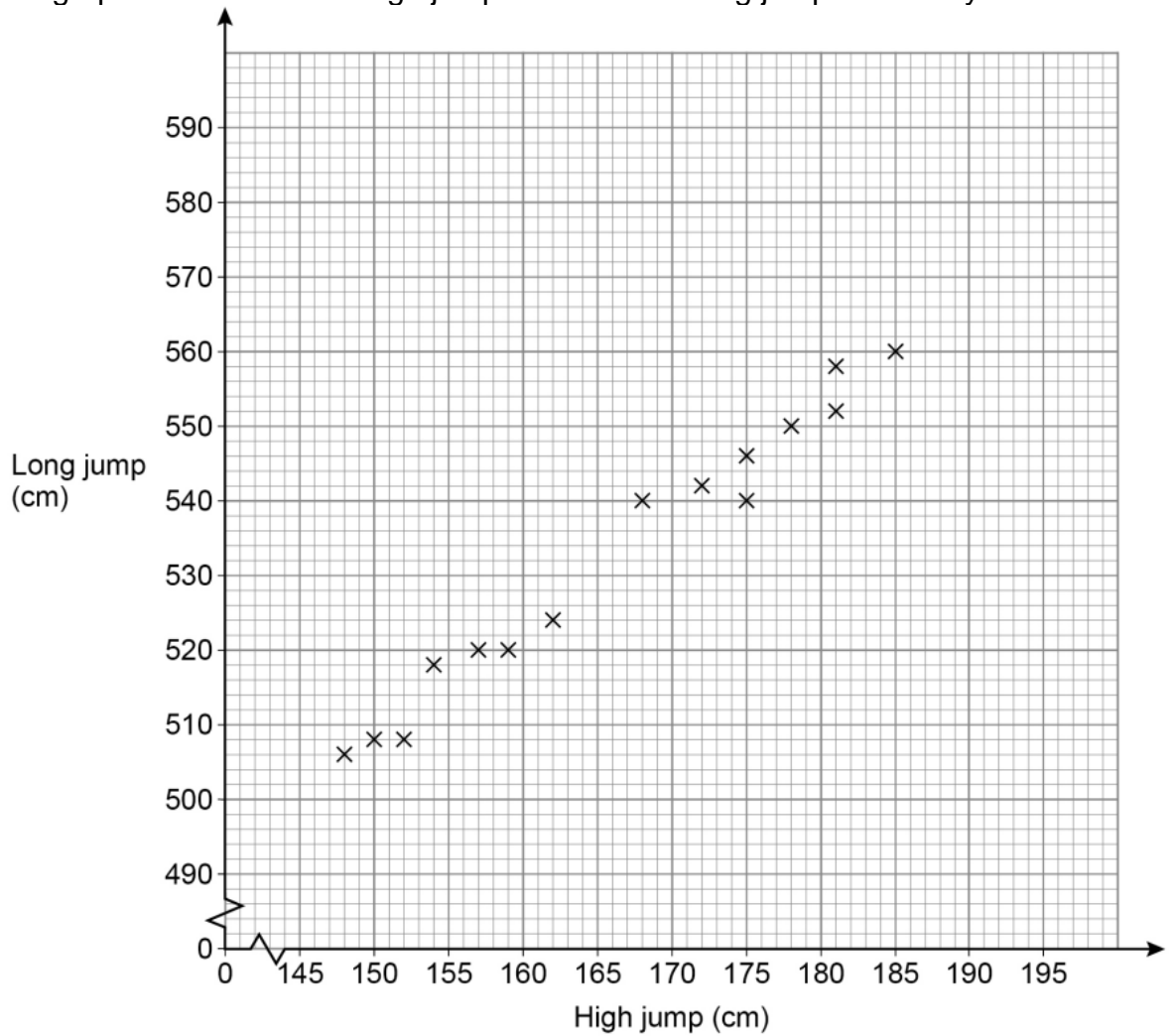
a.   Write down the type of correlation shown.
       [1 mark]

                        Answer _____

b.   Liam has a best high jump of 166 cm
Use a line of best fit to estimate his best long jump.   [2 mark]

                        Answer _____cm

c.   Another boy has a best high jump of 195 cm
Give a reason why you should not use a line of best fit to estimate his best long jump.
                                                                [1 mark]
_____

QR Links for Learning Resources and Extra Practice

Scatter Graphs

Other Graphs

Notes

_____

_____

_____

_____

_____

_____

Quadratics

Non-Calculator

Grade 4

(May 2020)

Factorise fully $24y^2 - 20y$

[2 marks]

_____

_____

_____

               Answer _____

(June 2019)

Factorise fully $2x^2 + 6x$

[2 marks]

_____

_____

_____

               Answer _____

(June 2019)

Circle the expression equivalent to $x^2 - 4x - 12$

[1 mark]

(x-4) (x-8)   (x+3) (x-4)   (x-12) (x+1)   (x+2) (x-6)

4. Factorise $x^2 - 100$

[2 marks]

_____

_____

_____

Answer _____

5. Factorise $2x^2 + 6x$

[2 marks]

_____

_____

_____

Answer _____

6. Solve $x^2 - x - 12 = 0$

[3 marks]

_____

_____

_____

Answer _____

Grade 5

(Nov 2018)

(a) Complete the table of values for $y = x^2$

[1 mark]

x	−2	−1	0	1	2
y					

(b) Draw the graph of $y = x^2$ for values of x from -2
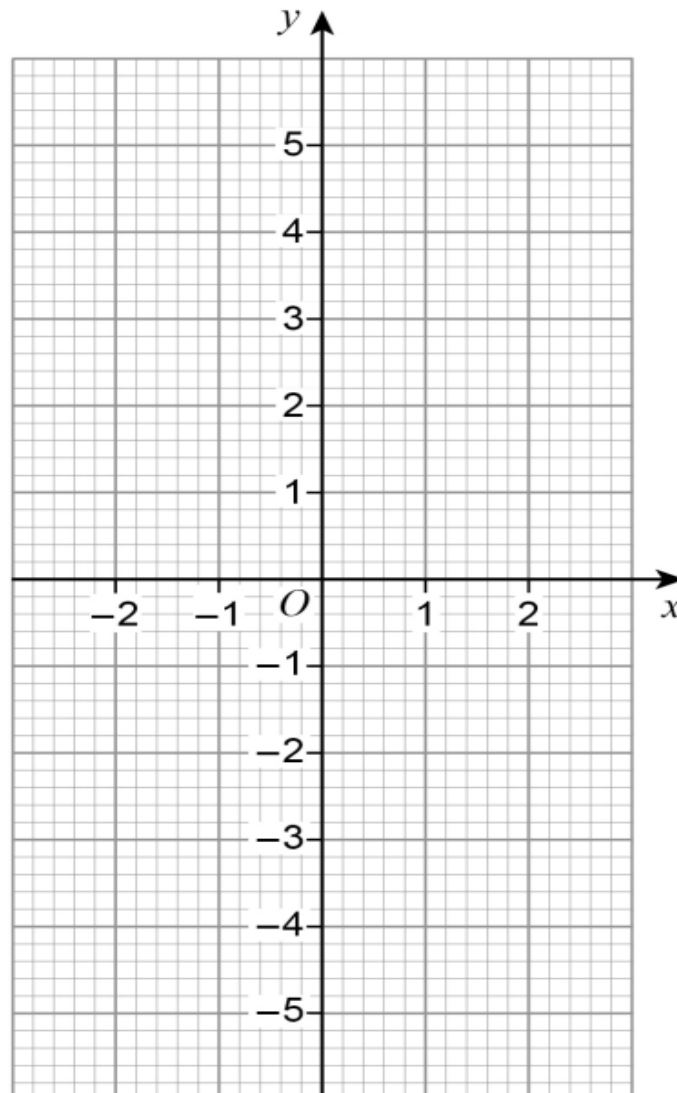
[2 marks]

(c) Use your graph to estimate the value of $\sqrt{2.6}$

[2 marks]

Calculator

Grade 5

(Nov 2018)

Here is a quadratic graph.
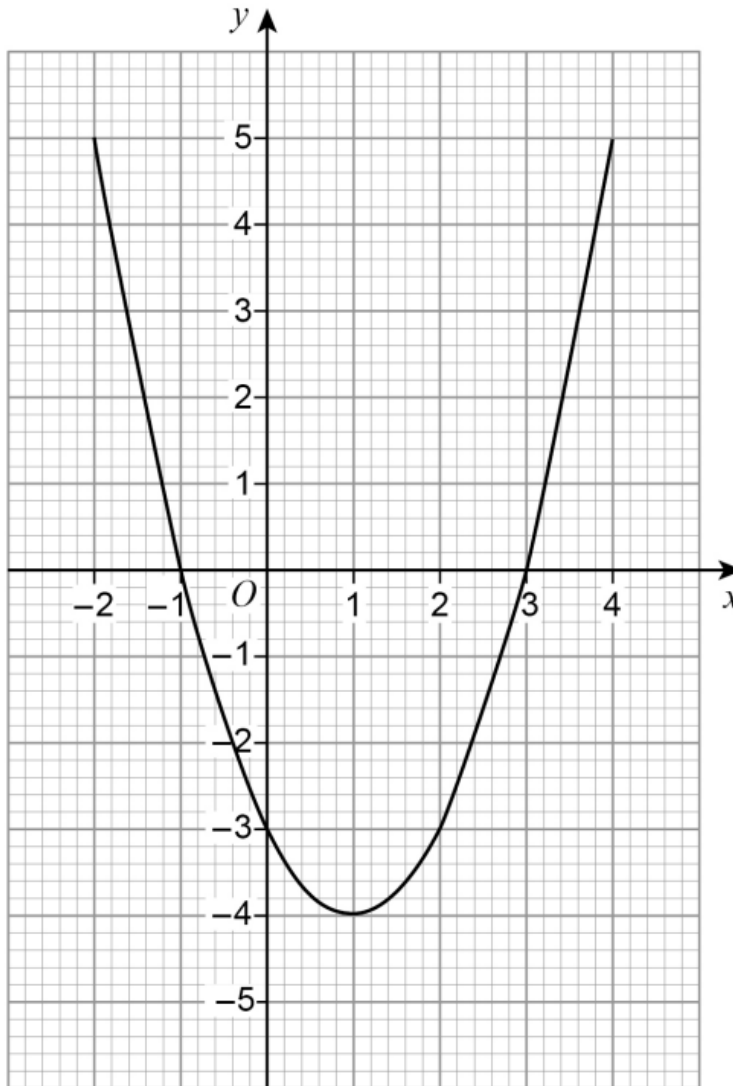
Circle the x-coordinate of the turning point of the graph.

[1 mark]

- 4   - 1   1   3

(Nov 2018)

(a) Complete the table of values for $y = x^2 - x - 2$

[2 marks]

x	-2	-1	0	1	2	3
y			-2	-2		4

(b) Draw the graph of $y = x^2 - x - 2$ for values of x from -2 to 3

[2 marks]
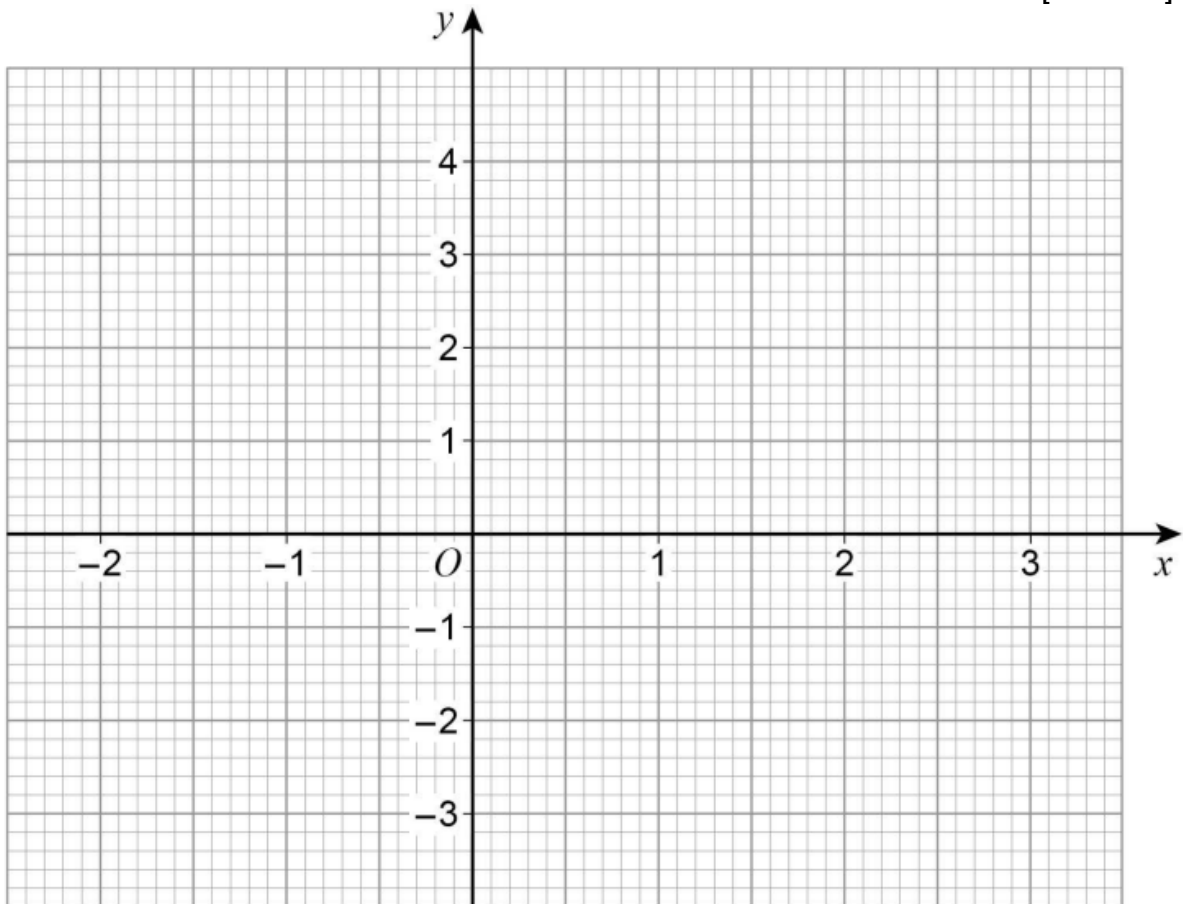
(June 2017)

Here is the graph of $y = x^2 - 7x + 10$ for values of x from 0 to 7
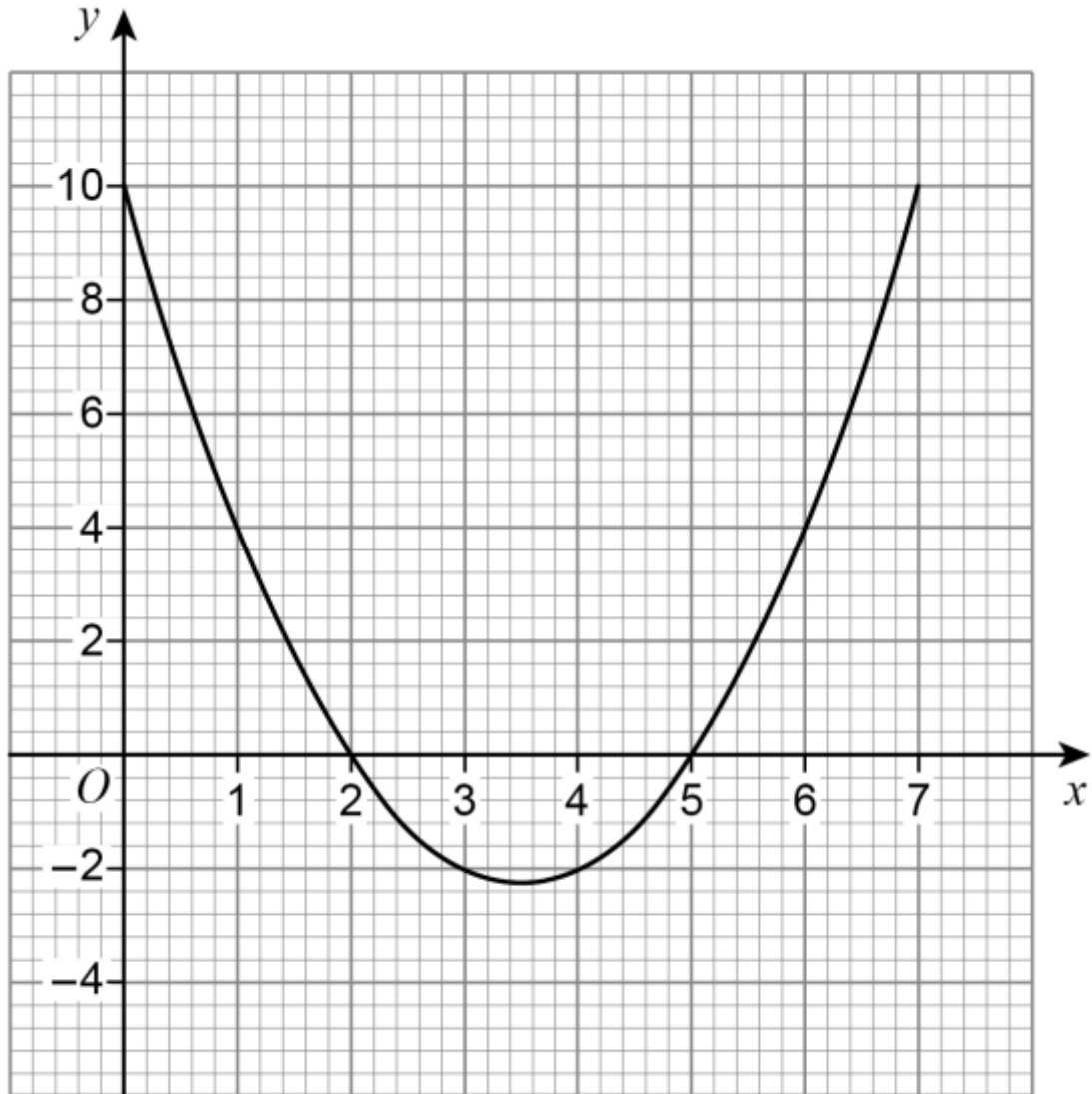
a.   Write down the roots of $x^2 - 7x + 10 = 0$ [2 marks]

Answer _____

b.   Write down the x-coordinate of the turning point of the curve.

[1 mark]

Answer _____

(June 2020)

Here is the graph of $y = x^2 + 2x - 1$ for x values from -3 to 1

    a. Write down the coordinates of the turning point of the graph.   [1 mark]

          Answer   (_____, _____)

    b. Write down the roots of $y = x^2 + 2x - 1$ [2 marks]

    Answer _____
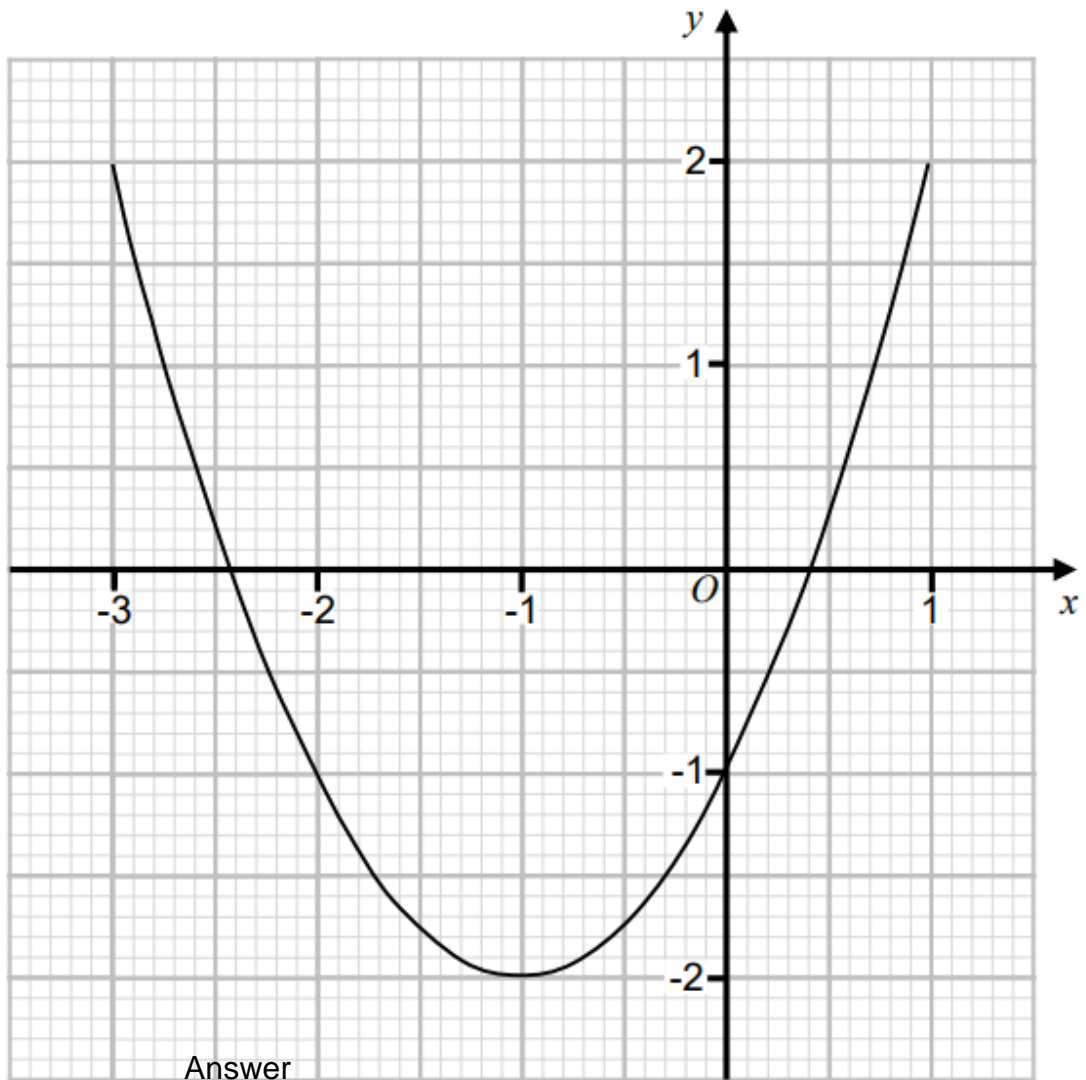
QR Links for Learning Resources and Extra Practice

Quadratics
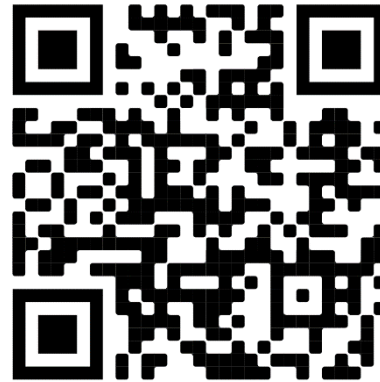
Quadratic Graphs

Notes

_____

_____

_____

_____

_____

_____

Non-Calculator

Grade 4

(2017 Nov Paper)

a. Joe wants to bisect angle BCD.
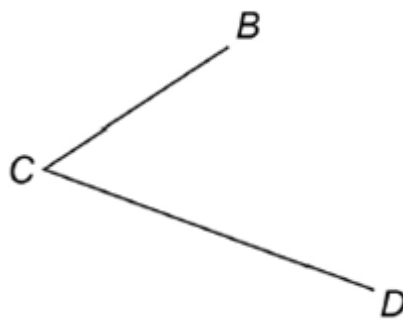
Here is his method.
Use a pair of compasses to draw arcs of the same radius from B and D.
Draw a straight line from C through the intersection of the arcs.
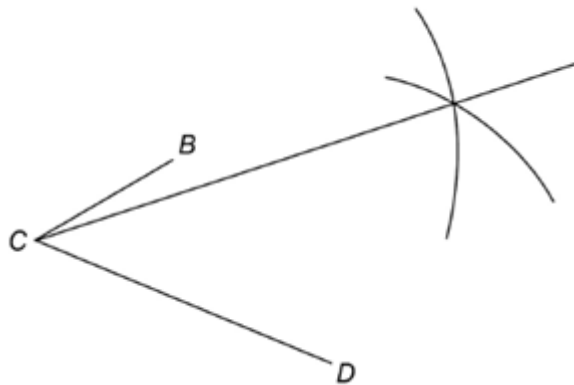
Write down the error in his method.

[1 mark]

_____

_____

Answer _____

b.   Kay wants to show all the points 3 km from point P.

Scale: 1 cm represents 1 km

×P

Here is her answer.

Scale: 1 cm represents 1 km

×P

What is wrong with her answer?

[1 mark]

_____

_____

Answer _____

c.   Here is a rectangle.

Using a pair of compasses and a straight edge, construct one line of symmetry.
Show clearly your construction arcs.

[2 marks]

(Corbettmaths)

Use ruler and compasses to construct the perpendicular bisector of AB.
You **must** show clearly all your construction arcs.

A .

. B

[2 marks]

3. (Corbettmaths)

600m   800m

1km
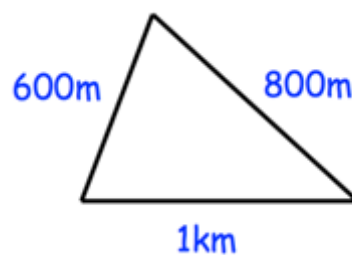
Using the scale of 1 cm = 200 m, construct a scale drawing of the triangle shown.

[4 marks]

(2017 Paper 3)

a.   The front elevation, side elevation and plan of a solid are all the same, as shown.

Write down the name of the solid

[1 mark]

Answer: _____

b.   The front elevation, side elevation and plan of a solid are all the same, as shown.
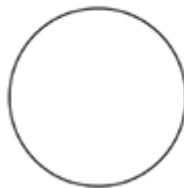
Write down the name of the solid.

[1 mark]

Answer: _____

(2018 Paper 3)

A sketch of triangle ABC is shown.

Not drawn accurately

8 cm

37°

11 cm
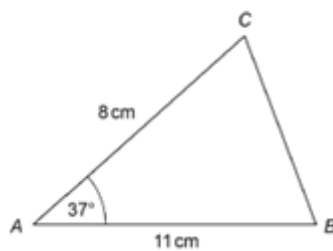
In the space below, complete an accurate drawing of triangle ABC.

[2 marks]

(2020 Paper 3)

The side elevation and plan of a cuboid are shown on the centimetre grid.

Side elevation   **Plan**
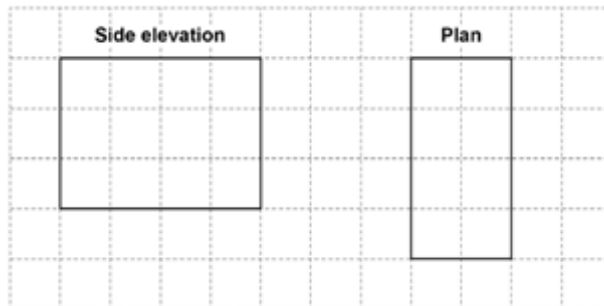
Draw the front elevation of the cuboid on this centimetre grid.

[2 marks]

Front elevation
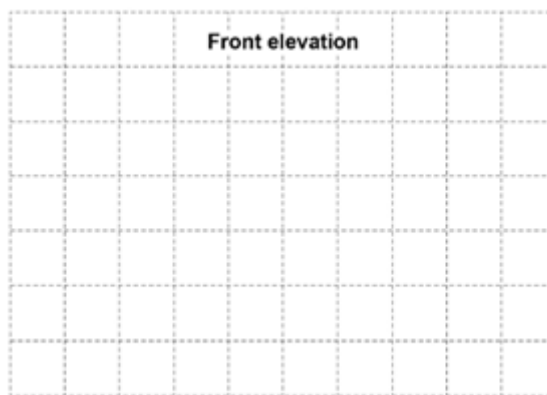
7. (2020 Paper 3)

ABCD represents the plan of a field.
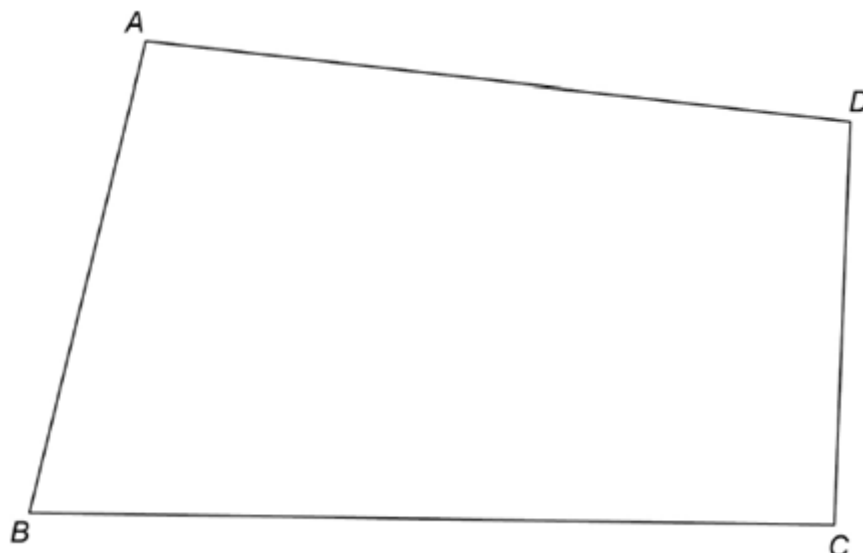
There is a path across the field that
   starts at B
   is the same distance from BA and BC.
Using ruler and compasses, show the position of the path.

[2 marks]

(2021 Paper 3)

a.   Towns A and B are shown on a centimetre grid.

Scale: 1 cm represents 10 miles
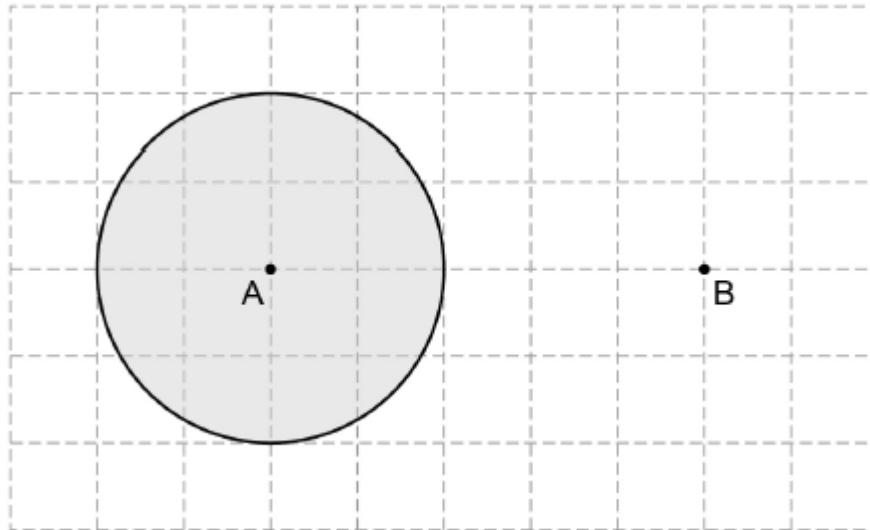
What does the shaded area represent?
Tick **one** box.

[1 mark]

☐   All the points nearer to A than to B

☐   All the points at least 30 miles from B

☐   All the points halfway between A and B

☐   All the points within 20 miles of A

b.   Complete an accurate drawing of triangle PQR so that
       angle QPR is 68

      the length of side PR is 8 cm

[2 marks]

(Corbettmaths)

   Draw a circle below with diameter of 11 cm.

[2 marks]

'
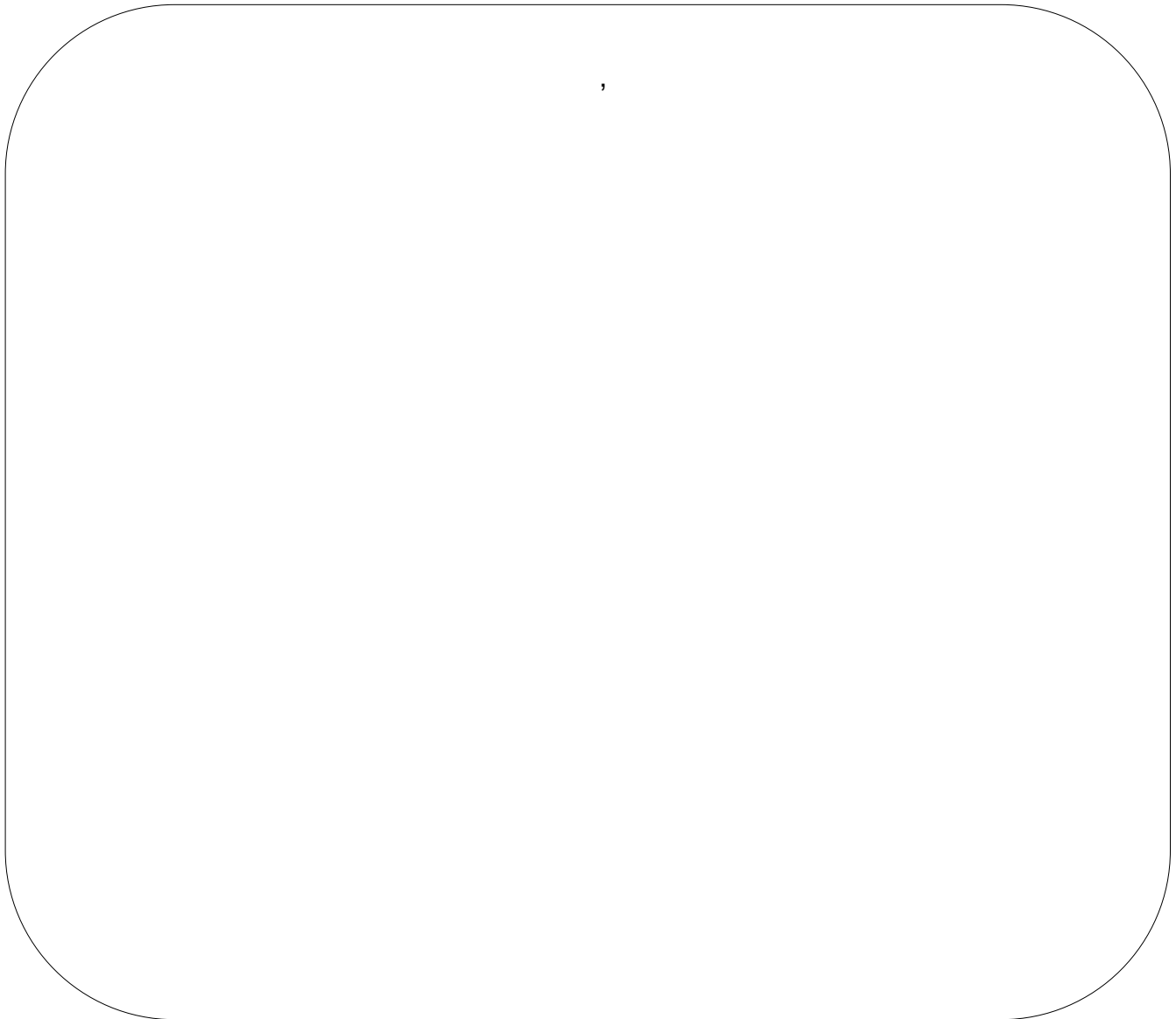
QR Links for Learning Resources and Extra Practice

Loci and Constructions

Notes

_____

_____

_____

_____

_____

Non-Calculator

Transformation

Grade 2

(2017 Nov Paper1)

Which of these shapes has two lines of symmetry?
Circle your answer.

[1 mark]

Semicircle   Rhombus   Trapezium   Isosceles triangle

(2018 Paper 1)

Which shape is 'similar' to shape X?

shape X

Circle the correct letter.

Shape A   Shape B

Shape C   Shape D
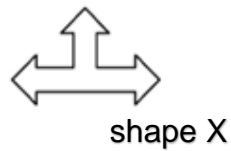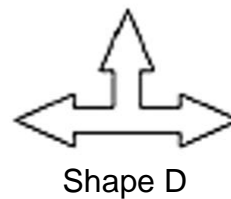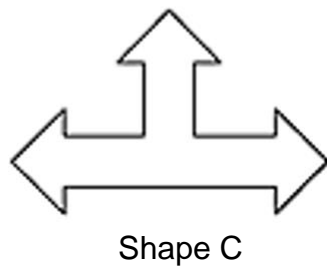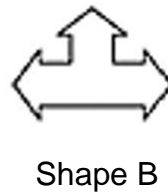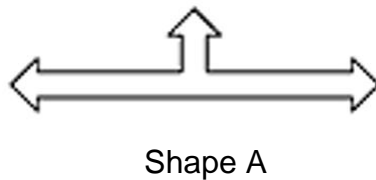
[1 mark]

(2018 Paper 1)

Reflect the triangle in the line y =2
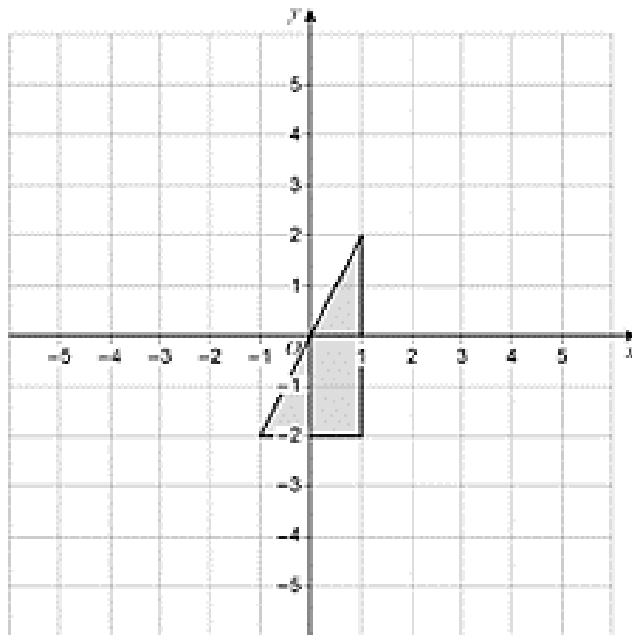
[2 marks]

b.   Rotate the kite 270° clockwise about (0,0)
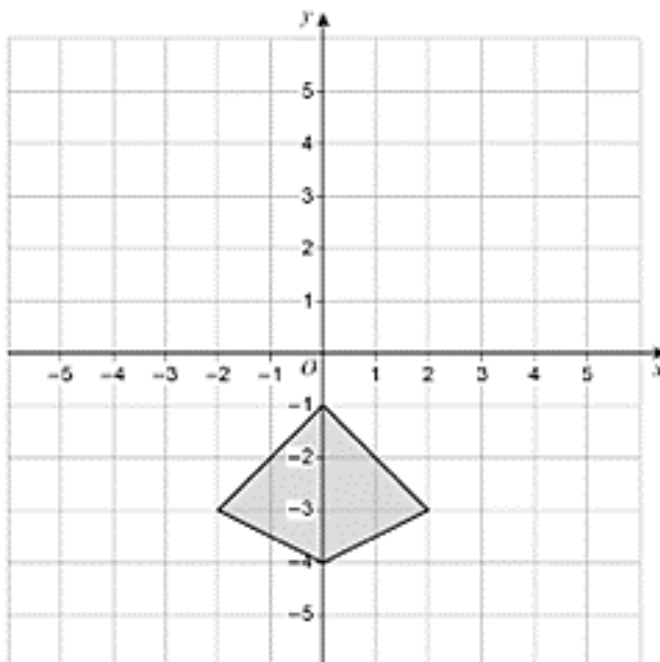
[2 marks]

a.   Here are two triangles, P and Q.
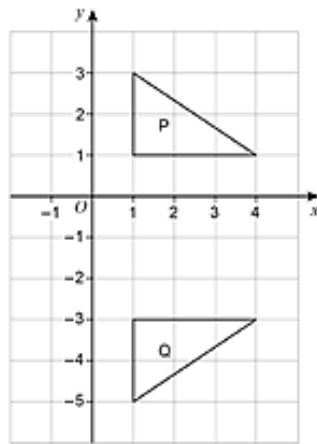
Here is a statement..

A transformation that maps P to Q is a reflection in the line x = -1

Make **one** criticism of the statement.

[1 mark]

---

b.   Here are two shapes, C and D.
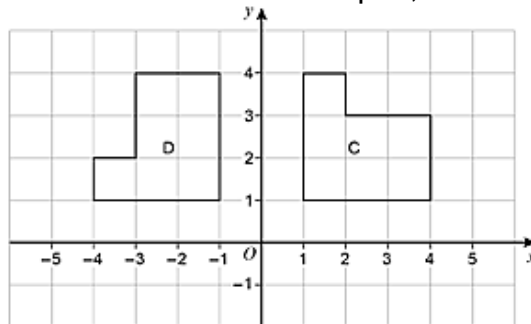
Here is a statement.

A transformation that maps C to D is a rotation through 90° anticlockwise

Make **one** criticism of the statement.

[1 mark]

(2019 Paper 1)

Five points are plotted on a centimetre grid.
The points are five of the vertices of a hexagon.
Each side of the hexagon has the same length.
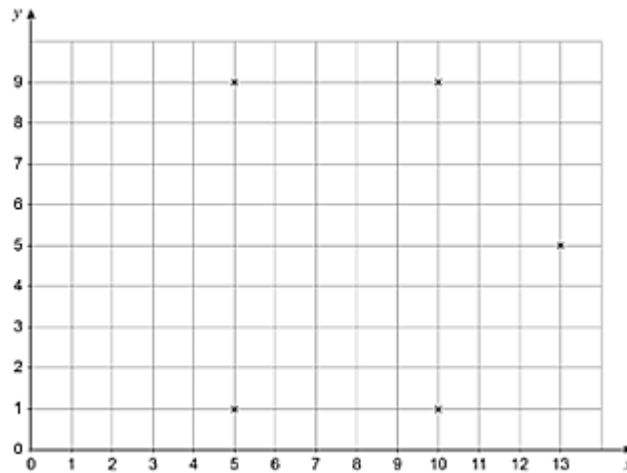
Work out **one** possible pair of coordinates of the other vertex.

[2 marks]

_____

_____

Answer   (_____ ,_____)

(2020 Paper 1)

Here is a parallelogram.
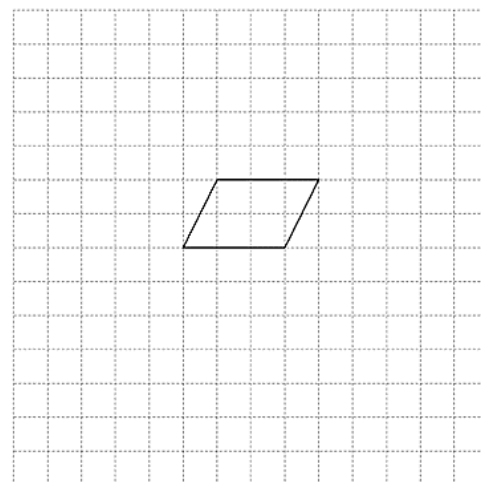
The parallelogram is translated by vector ??????????????
Draw the translated parallelogram.

(2021 Paper 1)

Compete the diagram so that it has
rotational symmetry of order 4 and
centre of rotation at point A.

[2 marks]

A
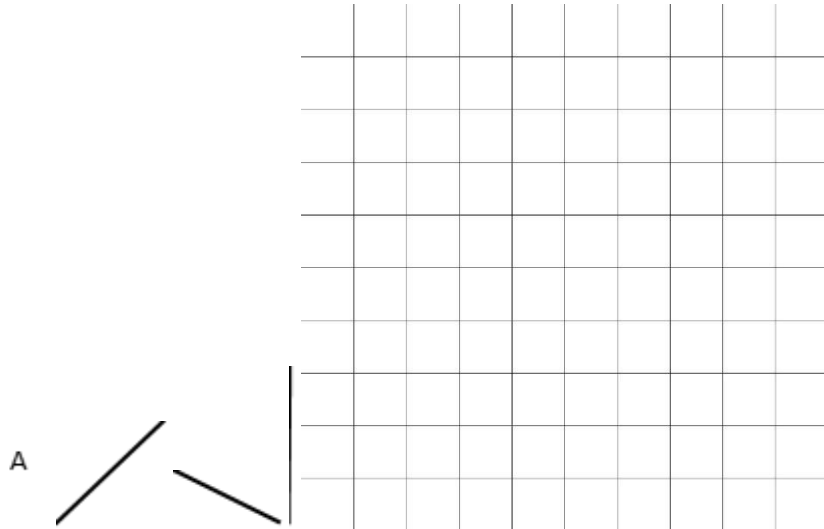
(Corbettmaths Textbook)

Here is a regular hexagon.
Write down the order of rotational symmetry

[2 marks]

(Corbettmaths)

Here are two shapes, A and B
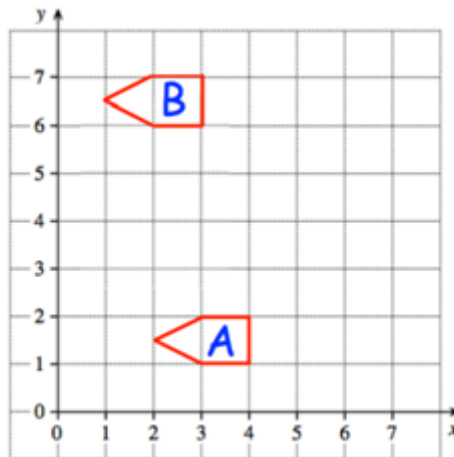
Write down the translation vector that would take A to B.

[2 marks]

_____

_____

_____

Calculator

Grade 2

1. (2018 Paper 2)

Circle the order of rotational symmetry of this drawing.

[1 mark]
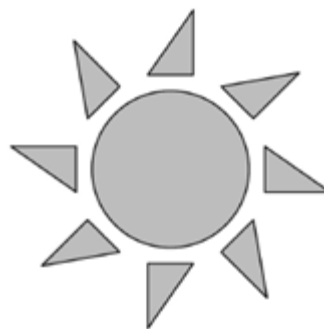
0   2   4   8

(2019 Paper 2)

Draw the lines of symmetry on this regular pentagon.
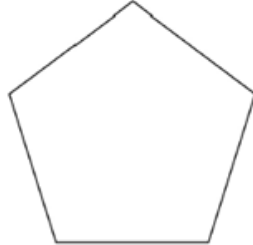
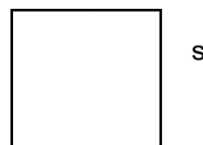[1 mark]

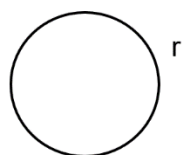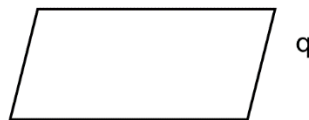(2018 Nov Paper 2)

Reflect shape in the y-axis.
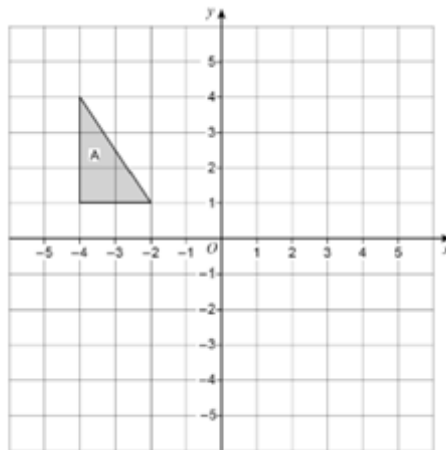
[2 marks]
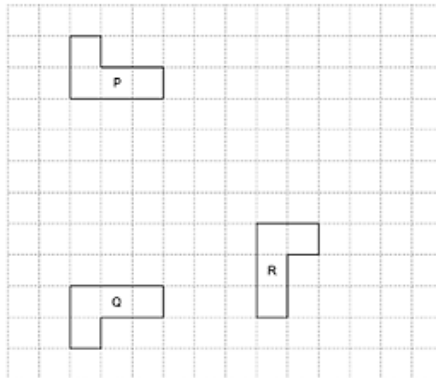

(2019 Nov Paper 2)

Circle the letter of the shape that has rotational symmetry of order 2.

[1 mark]

(2020 Paper 2)

Here are shapes P, Q and R.

P is mapped to Q by a single transformation.

     a. Circle the type of transformation.

[1 mark]

    Rotation   Reflection   Translation   Enlargement

P is mapped to R by a single transformation.

     b Circle the type of transformation.

[1 mark]

    Rotation   Reflection   Translation   Enlargement

(2018 Nov Paper 3)

A shape is translated by vector
$$\begin{pmatrix} 0 \\ -4 \end{pmatrix}$$

In which direction does the shape move?
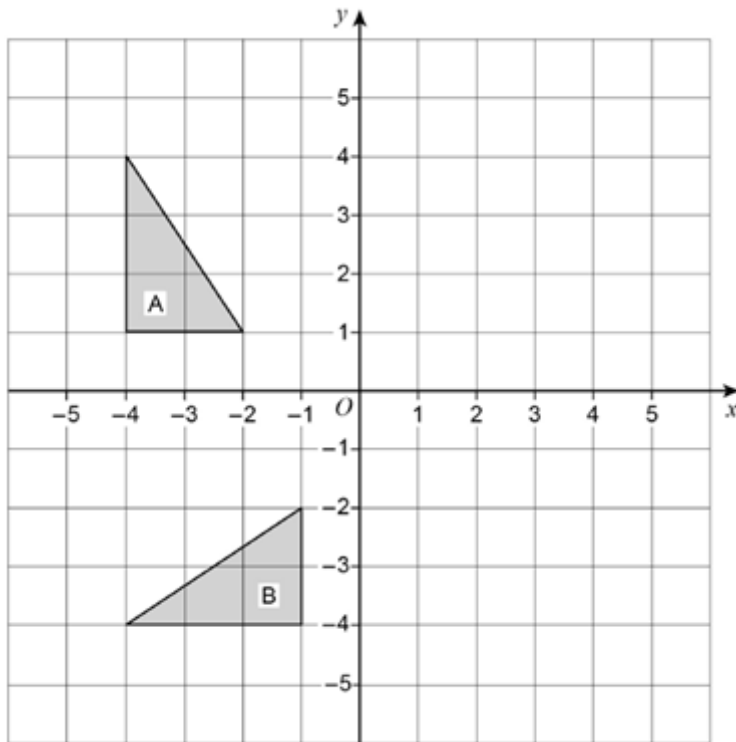Circle your answer.

[1 mark]

     Up   Down   Left   Right

(2018 Nov Paper 3)

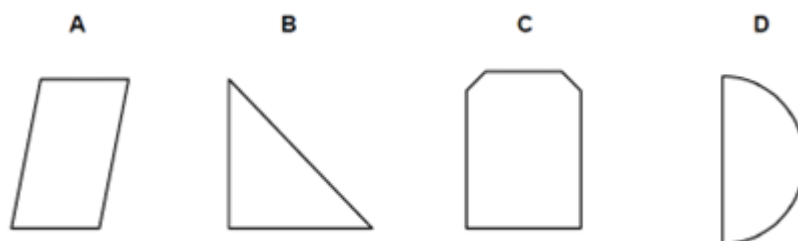Describe fully the single transformation that maps shape A to shape B.

[2 marks]

_____

_____

(2018 Paper 3)
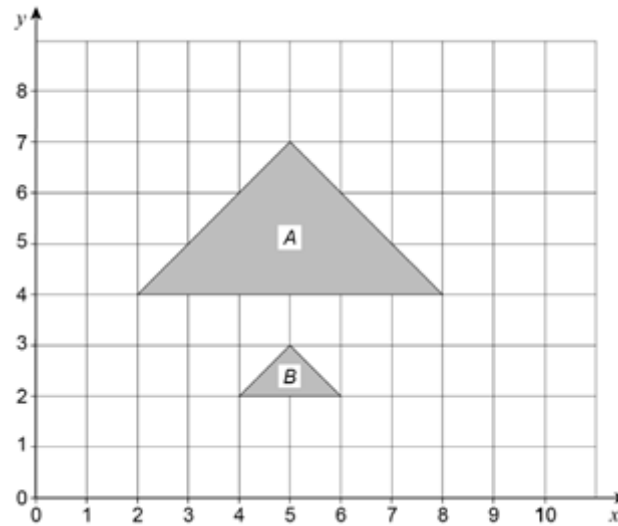Which of these shapes has no lines of symmetry?
Circle the correct letter.

[1 mark]

A   B   C   D
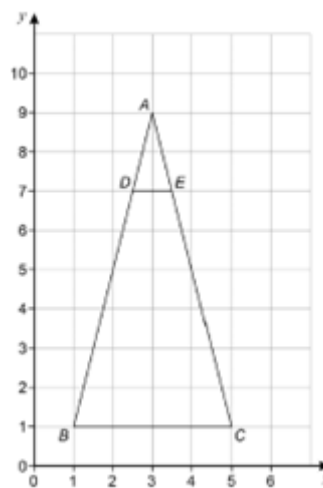
Grade 4

(2017 Nov Paper 2)

Describe fully the single transformation that maps A to triangle B.
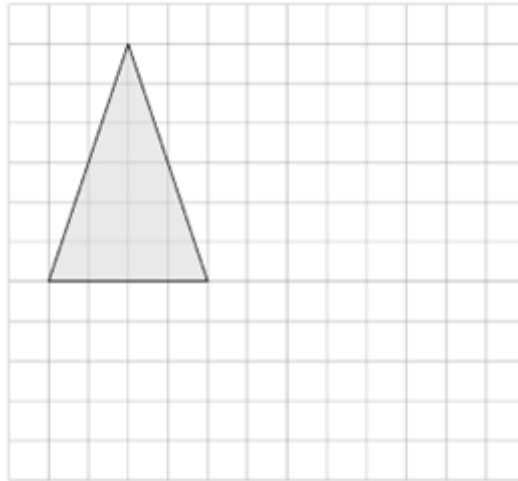

[2 marks]

_____

_____

(2021 Paper 2)

Describe fully the single transformation that maps triangle ABC to triangle to ADE.

[2 marks]

_____

_____

(2019 Paper 3)

On the grid, draw an enlargement of the triangle with scale factor 1:2

[2 marks]

_____

_____

Grade 5

(2018 Paper 3)

????????

$$a=\begin{pmatrix}6\\-10\end{pmatrix} \quad a=6-10$$

$$b=\begin{pmatrix}-12\end{pmatrix} \quad b=-12$$

$$c=\begin{pmatrix}-47\end{pmatrix} \quad c=-47$$

a.   Work out **a + b + c**

[2 marks]

_____

_____

b.   Show that **a + 2c = kb**, where k is an integer.

[3 marks]

_____

_____

_____

(2020 Paper 3)

$$c = 47$$

$$d = -35$$

Work out 8c - 2d

[2 marks]

_____

_____

_____

QR Links for Learning Resources and Extra Practice

Transformation

Notes

_____

_____

_____

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_____

_____