

Pop Quiz: Square Root and Cube Root

Name:

1. Circle the correct answers below.

$5^2 = 10$

$6^2 = 36$

$7^2 = 14$

$8^2 = 64$

$2^3 = 8$

$3^3 = 9$

$4^3 = 12$

$5^3 = 125$

[4]

2. Pair the correct answers using arrows.

$\sqrt{9}$

1

$\sqrt[3]{64}$

2

$\sqrt{25}$

3

$\sqrt[3]{8}$

4

$\sqrt{1}$

5

[5]

3. Answer the following **without** using a calculator.

(a) $7^2 + 2^2$

(b) 6^3

(c) $\sqrt{64} + \sqrt[3]{343}$

--	--	--

[6]

4. Answer the following using a calculator.

(a) $11^3 - 24^2$

(b) $\sqrt{2704} + \sqrt[3]{2197}$

(c) $\sqrt[3]{24389} \times 2^5$

.....

[3]

Pop Quiz: Factors and Prime Numbers

Name:

1. What are the factors of 12?

× = 12 × = 12 × = 12

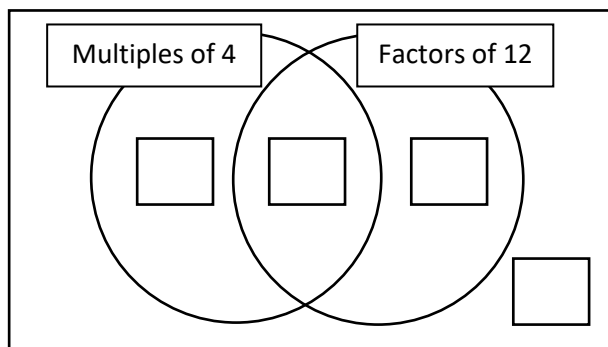
The factors of 12 are [3]

2. What are the factors of 90?

.....

The factors of 90 are [6]

3. Think of **one** number to go into each region..... [2]



4. (a) What makes a number a prime number? [1]

.....

(b) Is 185 a prime number? Yes No [1]

Reason:

(c) Circle the prime numbers below: [2]

20 21 22 23 24 25 26 27 28 29 30

Pop Quiz: Venn Diagrams

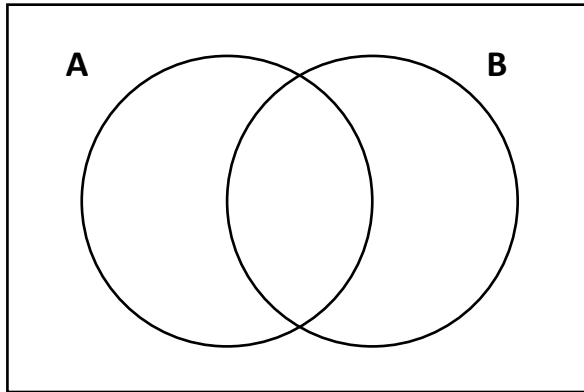
Name:

1. Complete the following Venn diagrams.

(a) $\varepsilon = \{1,2,3,4,5,6,7,8,9,10\}$

A = odd numbers

B = multiples of 3



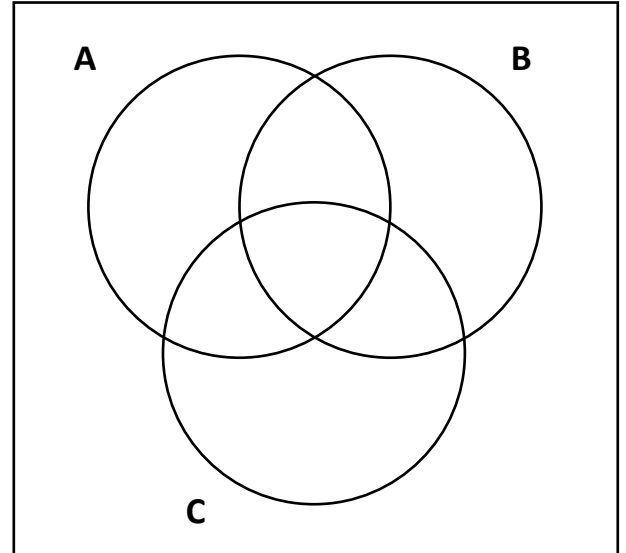
ε

(b) $\varepsilon = \{1,2,3, \dots, 15\}$

A = multiples of 4

B = one digit numbers

C = square numbers

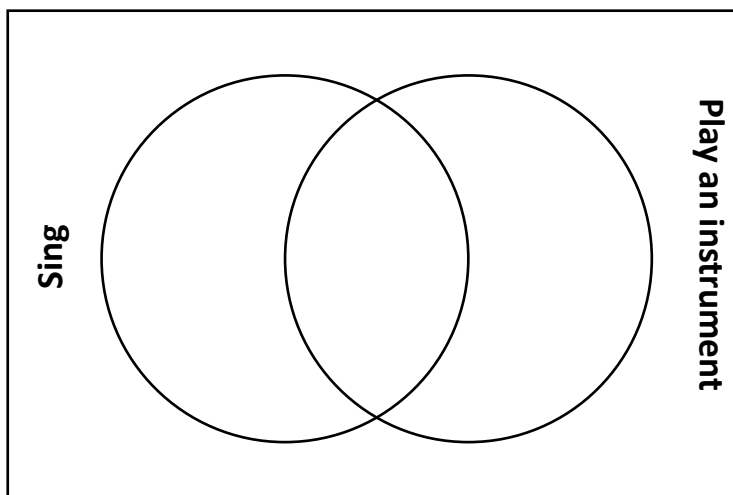


ε

[7]

2. 50 people attend an audition for a talent show. 33 people can sing; 21 people can play an instrument; and 8 people can sing and play an instrument.

(a) Complete the following Venn diagram to show the above information.



ε

[5]

(b) How many people in the audition can't sing nor play an instrument?

.....

Pop Quiz: Index Form

Name:

1. Write the following numbers as a product of their prime factors.

(a) 30

(b) 140

[Empty dashed box for answer (a)]

[Empty dashed box for answer (b)]

Answer:

Answer:

[4]

2. Write the following numbers in index form.

(a) 44

(b) 160

[Empty dashed box for answer (a)]

[Empty dashed box for answer (b)]

Answer:

Answer:

[4]

3. Circle the square numbers below.

$729 = 3^6$

$648 = 2^3 \times 3^4$

$196 = 2^2 \times 7^2$

$5476 = 2^2 \times 37^2$

$8748 = 2^2 \times 3^7$

$22275 = 3^4 \times 5^2 \times 11$

[3]

4. What is the square root of the number $400 = 5^2 \times 2^4$?

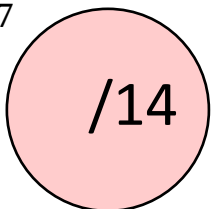
.....
.....
.....

[2]

5. What is the smallest whole number that multiplies with $14175 = 3^4 \times 5^2 \times 7$ to make a square number?

.....

[1]



Pop Quiz: Highest Common Factor and Lowest Common Multiple

Name:

1. Find the Highest Common Factor and Lowest Common Multiple of 30 and 54.

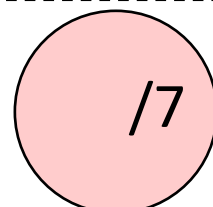
Answer: The highest common factor is and the lowest common multiple is

[5]

2. Buses to Wrexham leave a bus station every 20 minutes. Buses to Chester leave the same bus station every 15 minutes. A bus to Wrexham and a bus to Chester leave the bus station at 09:35. When is the next time buses depart to the two places at the same time?

Answer: The next time buses depart to the two places at the same time is

[2]



Pop Quiz: Sequences

Name:

1. Find the next number in the following sequences.

(a) 8, 15, 22, 29, 36, (b) 7, 14, 28, 56, 112,

(c) 10, 12, 16, 22, 30, (d) 2, 3, 5, 8, 12, 17, [4]

2. Explain, **in words**, how to find the next number in the following sequences.

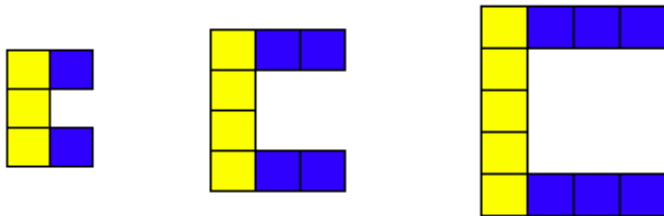
(a) 1280, 320, 80, 20, 5,

(b) 85, 74, 63, 52, 41,

(c) 5, 50, 500, 5000, 50000,

(d) 1, 1, 2, 3, 5, 8, 13, 21, [4]

3. (a) Draw pattern 4 in the box.



Pattern 1

Pattern 2

Pattern 3



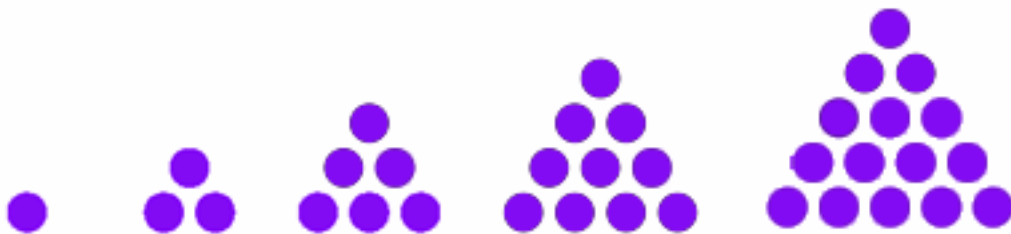
Pattern 4

(b) Complete the table.

Pattern number	1	2	3	4	5	6	7
Total number of squares							
Number of blue squares							
Number of yellow squares							

[4]

4. Without creating a picture, calculate how many circles would appear in pattern 10.



Pattern 1

Pattern 2

Pattern 3

Pattern 4

Pattern 5

[3]

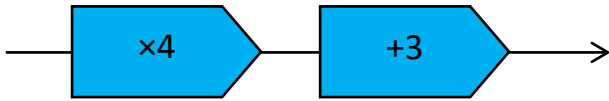
Space for calculations:

Pop Quiz: Function Machines and Forming Expressions

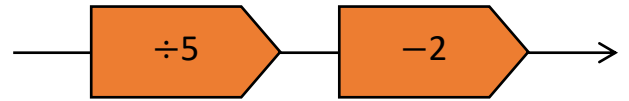
Name:

1. Fill in the blanks in the following tables.

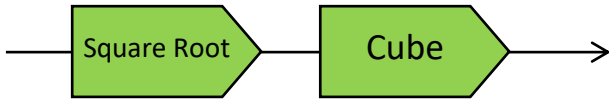
[11]



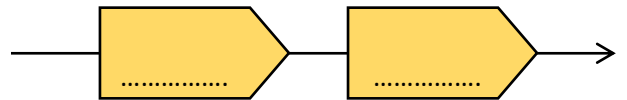
Input	Output
11	
	11
n	



Input	Output
20	
	8
n	



Input	Output
9	
	8
1	



Input	Output
5	26
10	101
n	

2. There are x marbles in a jar.

[5]

Write an expression, in terms of x , for the amount of marbles in a jar containing...

4 more marbles
3 less marbles
Half the marbles
Three times as many marbles
1 more than four times as many marbles



3. Fill in the blanks in the following tables. (n represents any number.)

[4]

→ Add three →				
		n		

→ Multiply by two →				
		n		

/20

Pop Quiz: Substitution and Formulae

Name:

1. Substitute the values $x = 4, y = 2, z = 5$ into the following algebraic expressions.

(a) $3x$

(b) $5y - z$

(c) x^2

Answer: Answer: Answer:

[3]

2. Substitute the values $d = 3, e = 4, f = 8$ into the following algebraic expressions.

(a) $\frac{f}{e}$

(b) $\frac{4d+2f}{7}$

(c) $2d^2$

Answer: Answer: Answer:

[3]

3. The formula $P = 2a + 2b$ calculates the perimeter P of a rectangle of length a and width b .
If a rectangle's length is 5 cm and its width is 7 cm, use the formula to calculate its perimeter.

Answer: [2]

4. The formula $\text{Speed} = \frac{\text{Distance}}{\text{Time}}$ calculates the **speed** of an object given the **distance** it has travelled in a specific **time**. What is the speed of a car that travels 90 miles in 2 hours?

Answer: [2]

Pop Quiz: Collecting Like Terms and Solving Equations Name:

1. Simplify the following expressions.

(a) $3x + 6x + 2x$

(b) $4x + 7x - x$

(c) $8z^2 - 5z^2$

Answer: Answer: Answer: [3]

2. Simplify the following expressions.

(a) $2a + 4b + 3a + 9b$

(b) $8e + 9g - 2e + 4g$

Answer: Answer [2]

3. Solve the following equations.

(a) $x + 4 = 9$

(b) $6x = 18$

Answer: Answer

(c) $y - 6 = 3$

(d) $\frac{x}{2} = 6$

Answer: Answer [4]

4. Solve the following equations.

(a) $2x + 5 = 19$

(b) $3y - 2 = 31$

.....
.....
.....
.....

.....
.....
.....
.....

[4]

(c) $5x - 1 = 3x + 55$

(d) $9x + 3 = 6x + 27$

.....
.....
.....
.....

.....
.....
.....
.....

[4]

5. The length of the six sides of an irregular hexagon, in centimetres, are

x

$x + 3$

$x - 2$

$2x$

$x + 5$

$4x + 1$

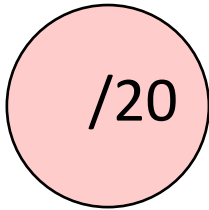
The perimeter of the hexagon is 97 centimetres.

Write an equation in terms of x and solve it to find the value of x . [4]

.....
.....
.....
.....
.....
.....
.....

Pop Quiz: Measures

Name:



1. Fill in the blanks.

(a) 1 m = _____ cm

(b) 1 kg = _____ g

(c) 1 litre = _____ ml

(d) 4 cm = _____ mm

(e) 1 stone = _____ pounds

(f) 1 litre = _____ cl

(g) 2 km = _____ m

(h) 1 gallon = _____ pint

(i) 1 inch \approx _____ cm

(j) 1 kg \approx _____ pounds

(k) 24 inches = _____ feet

(l) 32 ounces = _____ pounds

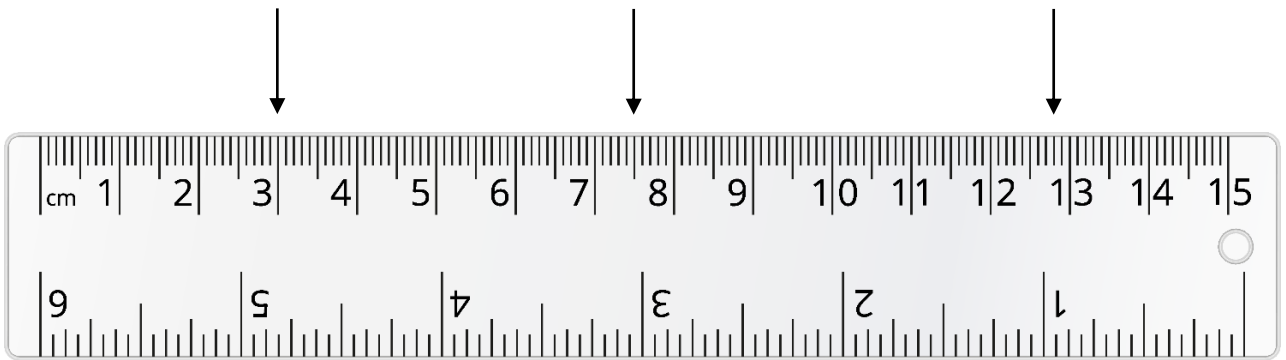
[12]

2. At which measures do the following arrows point to?

(a) _____ cm

(b) _____ cm

(c) _____ cm



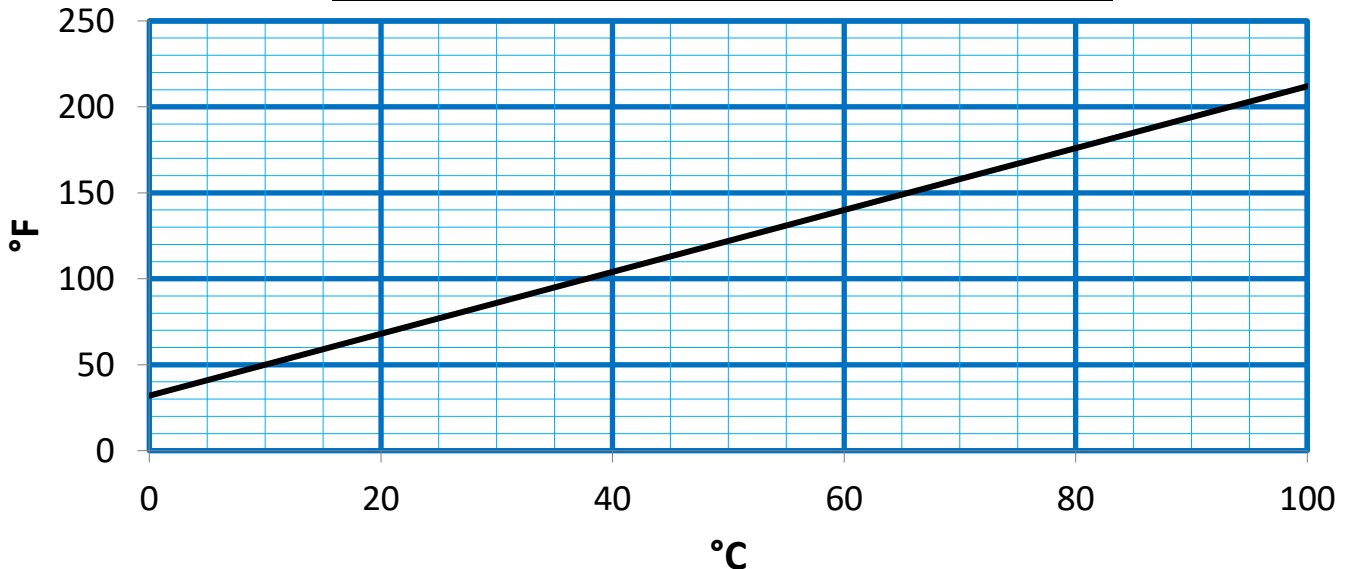
(d) _____ inches

(e) _____ inches

[5]

3.

Conversion graph to change between temperature in degrees Celsius and temperature in degrees Fahrenheit



Use the above graph to fill in the blanks below.

(a) 20°C = _____ °F

(b) 100°F = _____ °C

(c) 200°C = _____ °F

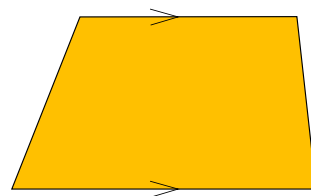
[3]

Pop Quiz: Quadrilaterals

Name:

1. Name the quadrilateral shown on the right.

[1]



2. Name all quadrilaterals with **two pairs** of parallel sides.

.....

[2]

3. True or false? Every parallelogram is a rhombus.

[1]

4. Use a compass and a ruler to draw a kite with lengths 2.5 cm and 6 cm, and whose longest diagonal is 8 cm.

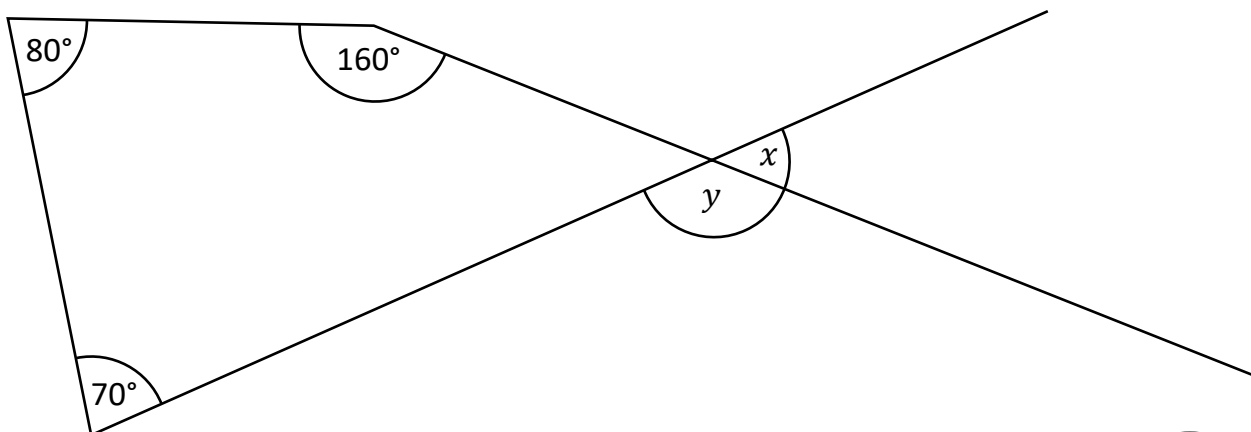


[3]

5. Find the size of the marked angles.

(The diagram is not drawn to scale.)

[2]



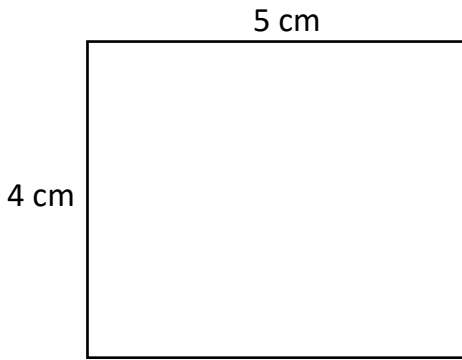
$x = \dots\dots\dots^\circ, y = \dots\dots\dots^\circ$

Pop Quiz: Perimeter and Area

Name:

1. Calculate the perimeter and area of the following shapes.

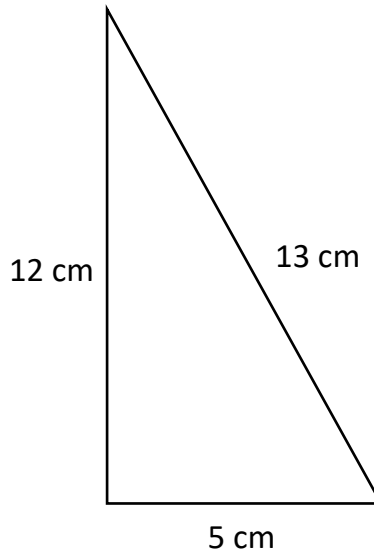
(a)



Perimeter =

Area =

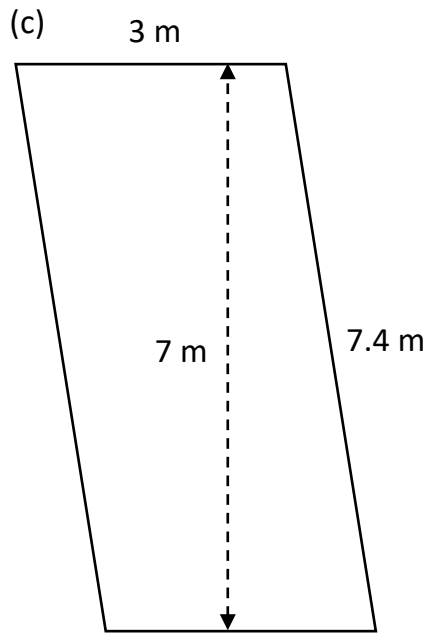
(b)



Perimeter =

Area =

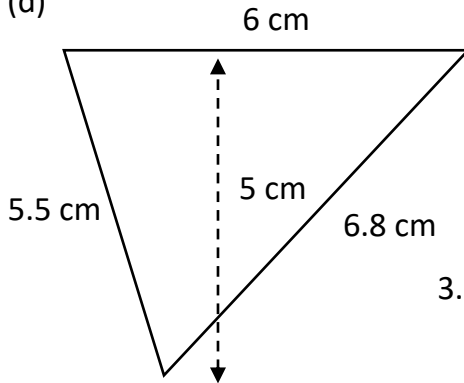
(c)



Perimeter =

Area =

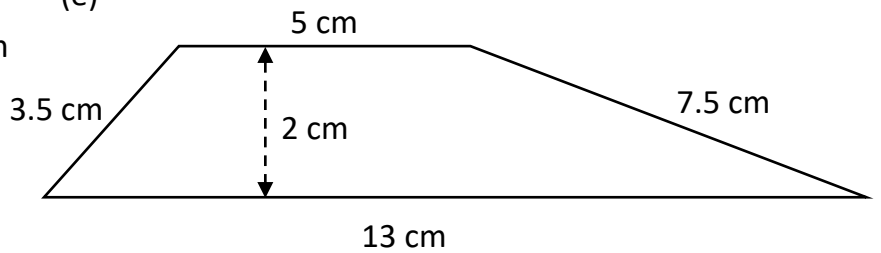
(d)



Perimeter =

Area =

(e)



Perimeter =

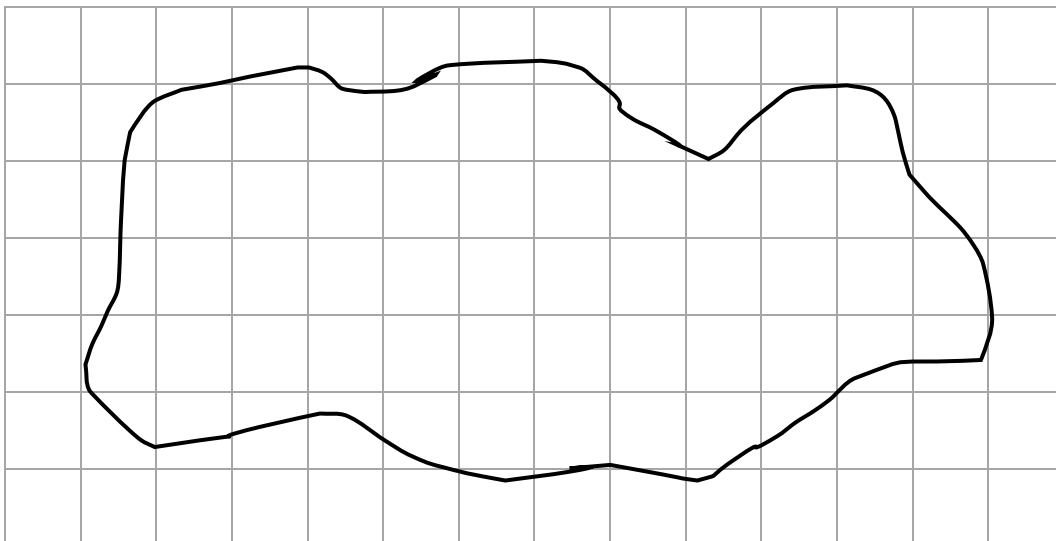
Area =

[10]

2. Find an estimate for the area of the shape below.

(Each square represents an area of 1 cm².)

[2]

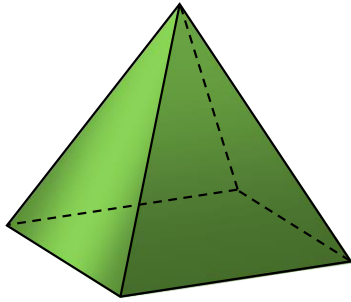


Pop Quiz: Solids

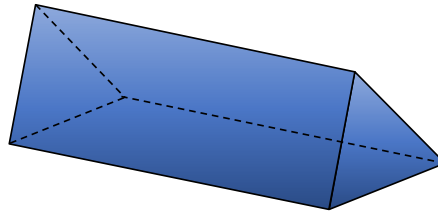
Name:

1. Name the following solids.

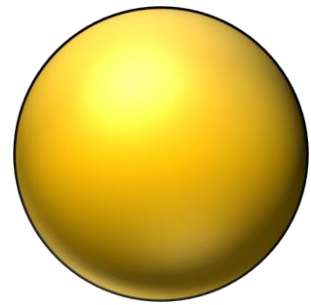
(a)



(b)



(c)



..... [3]

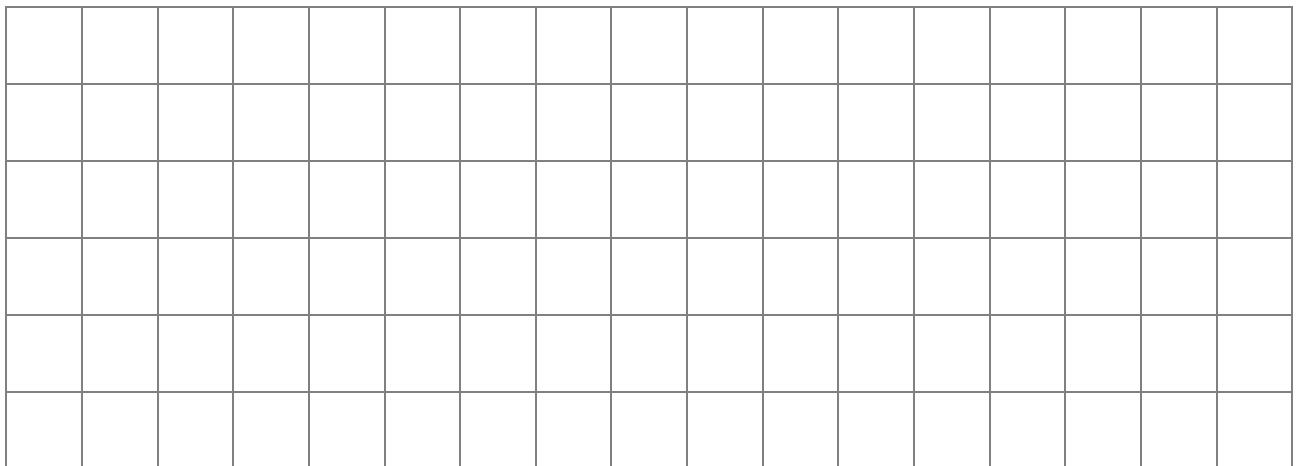
2. (a) How many vertices does a cuboid have?

(b) How many edges does a cylinder have?

(c) How many faces does a cone have?

[3]

3. Draw two different nets for a cube.

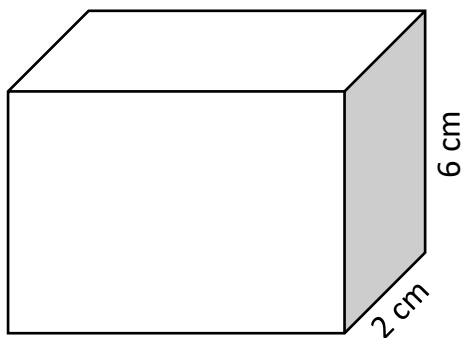


[2]

4. Find the volume of the following cuboids.

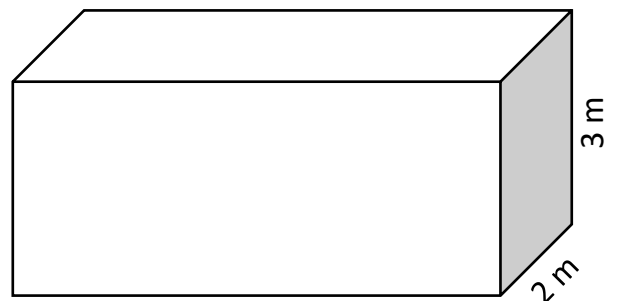
(a)

7 cm



(b)

8 m

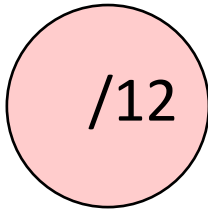


.....

[4]

Pop Quiz: The Mode

Name:



1. Calculate the mode for the following sets of data.

(a) 3, 4, 7, 8, 8, 9, 10

(b) 30, 10, 20, 70, 80, 40, 90

.....

.....

(c) 5, 2, 4, 5, 1, 4, 8, 9, 3

(d) Blue, Red, Yellow, Black, Purple, Red, Blue

.....

.....

[4]

2. Here are the heights of seven people:

Gwilym	Heulwen	Steffan	Seren	Ceri	Sera	Huw
156 cm	160 cm	152 cm	154 cm	154 cm	162 cm	170 cm

(a) What is the mode of the heights?

.....

(b) How many people are shorter than the mode?

(c) Name all people taller than the mode:

[3]

3. 30 people were asked how many times they have visited a supermarket over the past fortnight.

(a) What is the mode for the number of visits to the supermarket?

(b) Have the majority of people visited a supermarket over the past fortnight?

Number of visits	Frequency
0	4
1	9
2	8
3	5
4	4

[2]

4. Here are the prices to attend a home game in two different football leagues.

League 1	£25	£30	£30	£40	£35	£35	£35	£40	£35	£45
League 2	£15	£45	£50	£55	£60	£50	£35	£45	£50	£25

Use the mode to decide which league, on average, offers the cheapest prices to supporters.

.....

.....

.....

[2]

5. Find the modal class for the data shown on the right, which shows the time taken by 50 people to complete a 100 m race.

.....

Time (t seconds)	Frequency
$10 \leq t < 12$	7
$12 \leq t < 14$	14
$14 \leq t < 16$	24
$16 \leq t < 18$	3
$18 \leq t < 20$	2

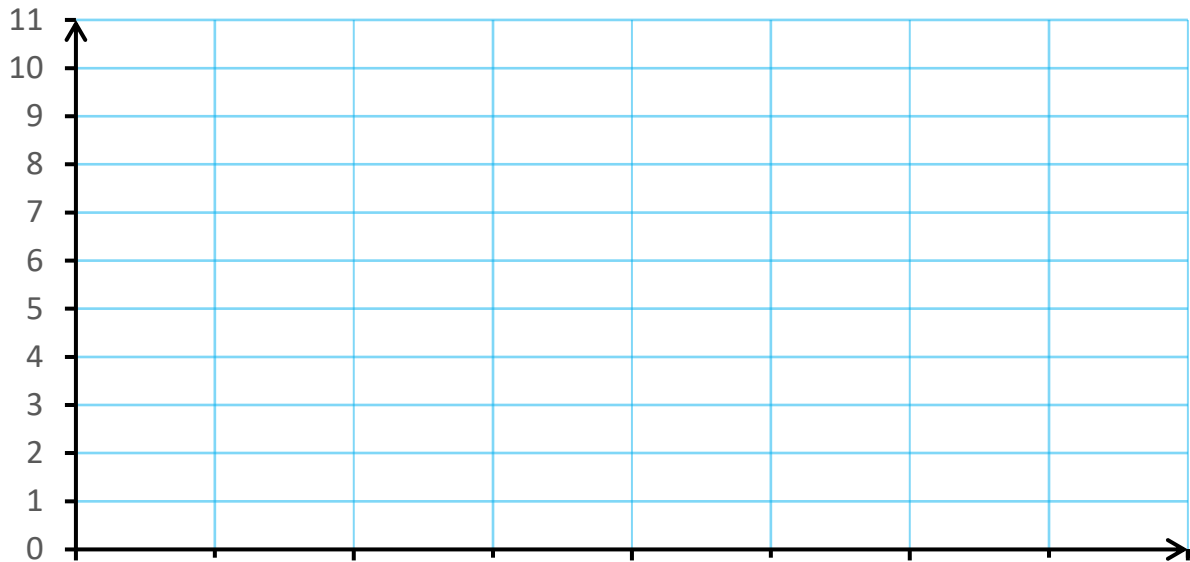
[1]

Pop Quiz: Vertical Line Diagrams

Name:

1. Draw a vertical line diagram for the following data, showing the favourite supermarket of the members of a chess club.

Tesco	9	Lidl	8	Marks & Spencer	6
Asda	5	Aldi	2	Waitrose	4



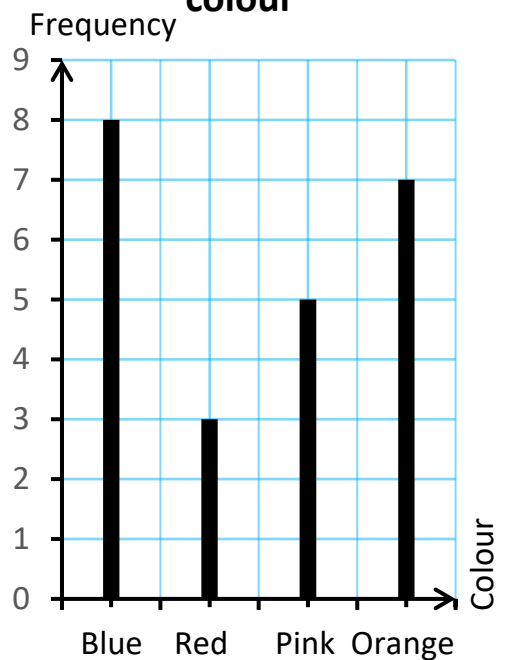
[4]

2. Look at the vertical line diagram on the right.

- (a) How many people like the colour pink?
- (b) Which is the least favourite colour?
- (c) How many people are in class 10U?
- (d) Complete the sentence: more learners like the colour orange compared to the colour red.
- (e) What is the mode of the class' favourite colour?
.....

[5]

10U's favourite colour

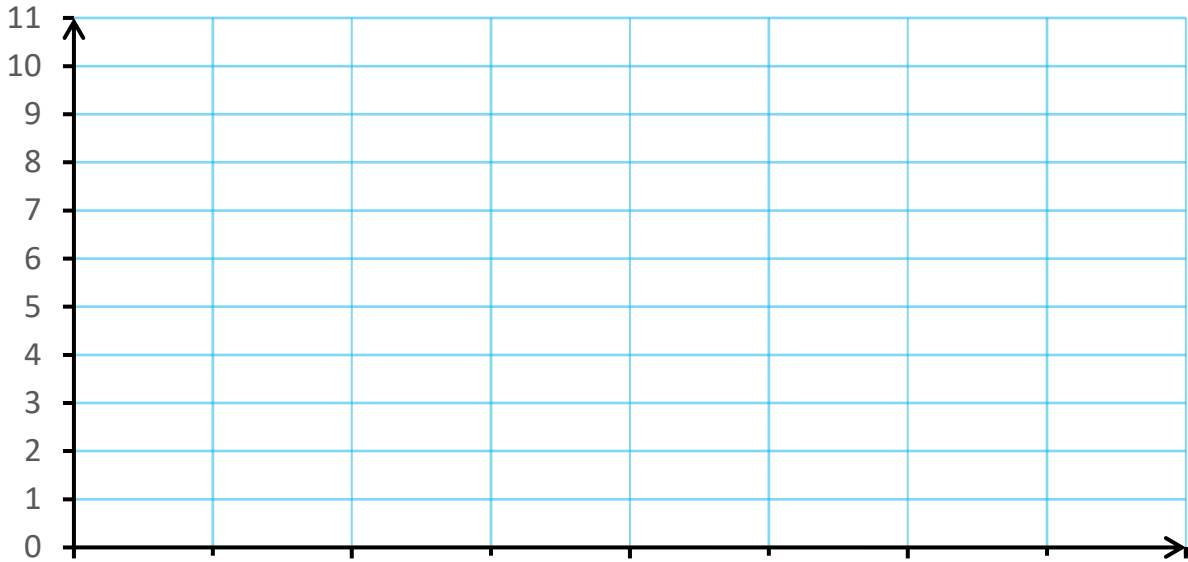


Pop Quiz: Line Graphs

Name:

1. Draw a line graph for the following data, showing the favourite pet of the members of a dance club.

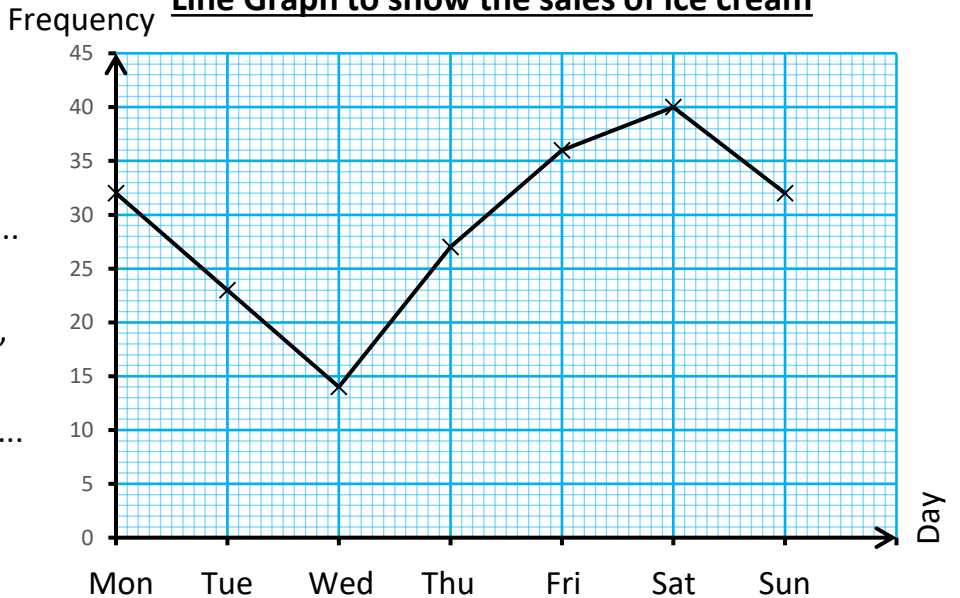
Cat	8	Dog	7	Rabbit	4
Snake	2	Guinea Pig	3	Budgie	1



[4]

2. Look at the line graph shown on the right.

Line Graph to show the sales of ice cream



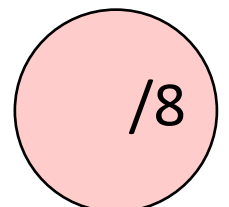
(a) How many ice creams were sold on Thursday?
.....

(b) Which day was coldest, in your opinion?
.....

(c) How many ice creams were sold throughout the week?

(d) What is the range of the daily ice creams sold?.....

[4]



Pop Quiz: Scatter Diagrams

Name:

1. Sketch a scatter diagram that shows

(a) Positive correlation



(b) No correlation

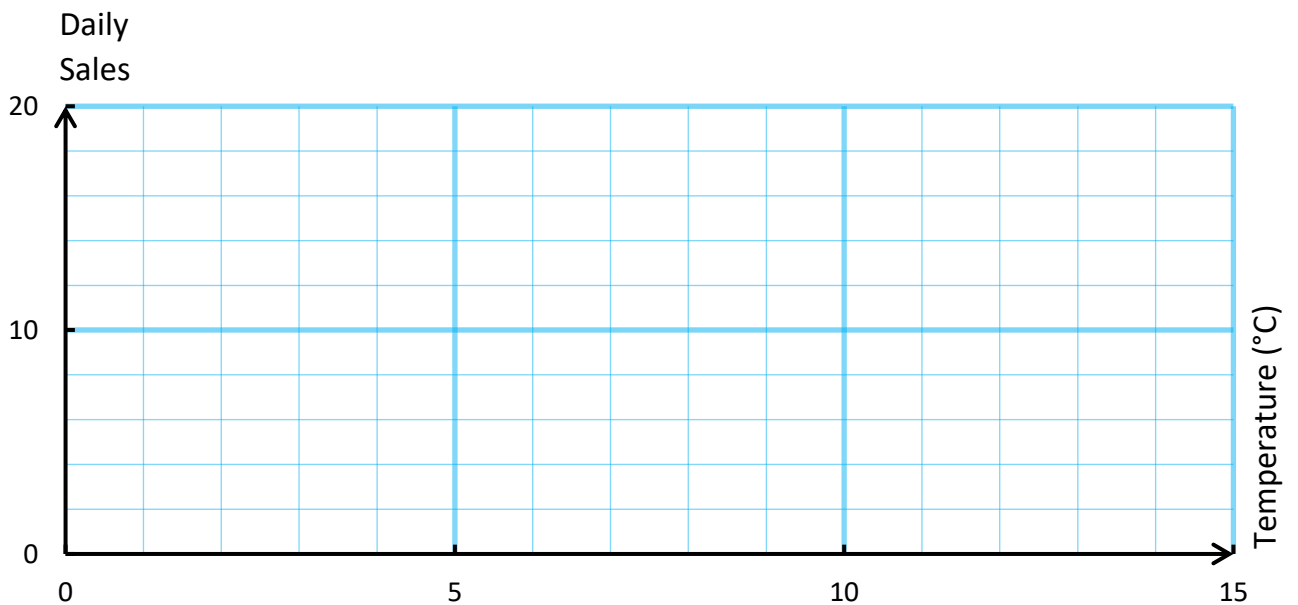


[2]

2. The following data shows the temperature at midday each day over a period of a week, along with the daily sales of heaters in a particular shop over the same period.

Temperature (°C)	12	10	4	7	11	11	9
Daily Sales	5	7	18	12	6	8	10

(a) Plot the data on the scatter diagram below.



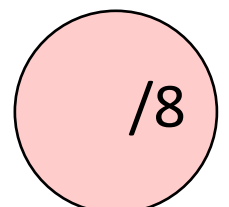
(b) Which type of correlation is shown in the scatter diagram?

.....

(c) Draw, by eye, a line of best fit on your scatter diagram.

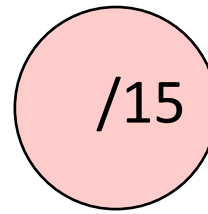
(d) Estimate the sales of heaters in the shop on a day where the midday temperature is 6°C.

[6]



Pop Quiz: Probability in Words

Name:



1. Use “no chance”; “low chance”; “even chance”; “good chance” or “certain” to describe the probability of the following events.

(a) Someone in Llandudno will buy an item on Amazon’s website tomorrow.
.....

(b) If today is a Thursday, then tomorrow will be a Wednesday.
.....

(c) If today is a Thursday, then tomorrow will be a Friday.
.....

(d) On looking at a digital clock to check the time, the number of minutes will be even.
.....

[4]

2. Steffan has a box that contains 24 balls. 14 of the balls are green, and the other 10 are brown. Steffan randomly chooses one ball from the box. Choose the best description (from the ones given below) to describe the chance that Steffan’s chosen ball is brown.

no chance

unlikely

even chance

likely

certain

[1]

3. Draw a probability scale. Mark the points a, b, c, d to show how probable, in your opinion, the following events are.

(a) A red coloured car will pass Ysgol y Creuddyn sometime over the next four hours.

(b) You will obtain tails when throwing a coin.

(c) You will obtain a number less than 6 when throwing a normal fair die.

(d) YouTube will stop working sometime over the next 24 hours.

[6]

4. How probable are the following events? (Answer with a number between 0 and 1.)

(a) You will catch a cold sometime over the next three months.

(b) A member of staff at Ysgol y Creuddyn will win the National Lottery jackpot over the weekend.

(c) It will be dry all day during the last day of this month.

(d) Sometime during your life, you will run a marathon.

[4]

Pop Quiz: Directed Numbers

Name:

1. Write the following numbers in order, from least to greatest.

(a) 5, -2, 8, -8, 10

(b) -7, -4, 8, -1, -9, 0

.....

[2]

2. Write the symbol < or > between the following pairs of numbers.

(a) -5 ____ 4

(b) -9 ____ -5

(c) 5 ____ -6

[3]

3. Fill in the blanks in the following table.

Temperature at 09:00	Temperature at 18:00	Change in temperature
15°C		2°C decrease
5°C	-1°C	
	-2°C	2°C increase
-7°C	-5°C	
-1°C		3°C decrease
	2°C	8°C increase

[6]

4. Calculate:

(a) $5 + -3$

(b) $12 - -5$

(c) 3×-4

(d) $-12 \div -3$

.....

(e) $-7 + -1$

(f) $-13 - -5$

(g) -5×-4

(h) $18 \div -3$

.....

[8]

5. Complete the following sentences.

(a) Subtracting a negative number is the same as _____

(b) Adding a negative number is the same as _____

(c) Multiplying a positive number by a negative number gives an answer that is _____

(d) Multiplying a negative number by a negative number gives an answer that is _____

[4]

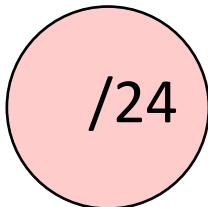
6. Complete the following table.

×	2	-4	
5	10		-30
	14		
-6			
9			

[11]

Pop Quiz: Decimals

Name:



1. Calculate:

(a) $35.2 + 7.68$

(b) $9.6 - 2.34$

(c) 84.6×5

(d) $14.88 \div 6$

Four dashed rectangular boxes for writing answers to questions 1(a) through 1(d).

.....

[4]

2. Write the following numbers in order, from least to greatest.

6.24, 4.6, 2.06, 4.62, 6.2, 2.4, 4.26, 2.6, 6.42, 6.4, 4.2, 2.46

.....

[2]

3. (a) Write the percentage 27% as a decimal.

(b) Write the percentage 4% as a decimal.

(c) Write the decimal 0.92 as a percentage.

(d) Write the decimal 0.3 as a percentage.

[4]

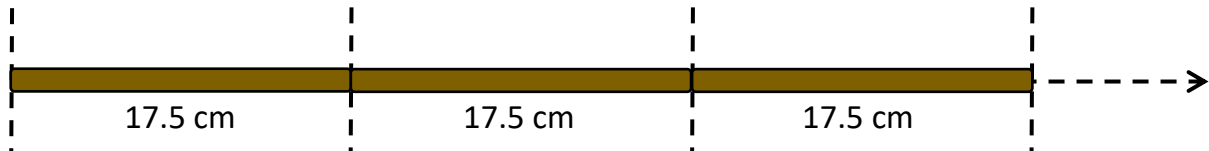
4. Complete the following table.

Original Number	Round off to the nearest unit	Round off to the nearest 10	Round off to 1 decimal place	Round off to 2 decimal places	Round off to 3 decimal places
42.6826					
8.9073					

[10]

5. It is possible to place identical rods end to end, as shown below.

The length of each rod is 17.5 cm.



How many of these rods can be placed, like this, between two points that are 4 metres away from each other?

.....
.....
.....
.....

[4]

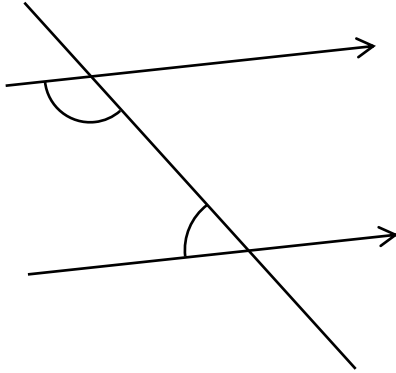
Pop Quiz: Angles with Parallel Lines

Name:

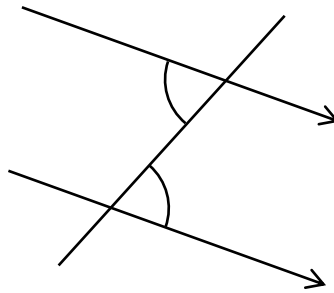
/14

1. Are the following pairs of angles corresponding angles, alternate angles or internal angles?

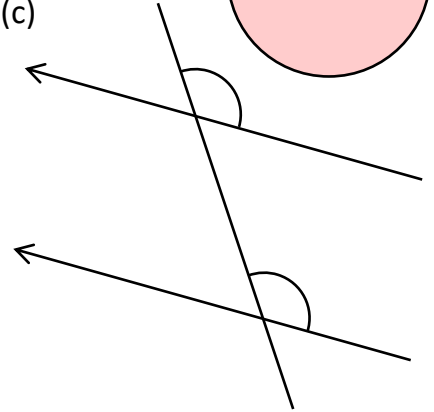
(a)



(b)



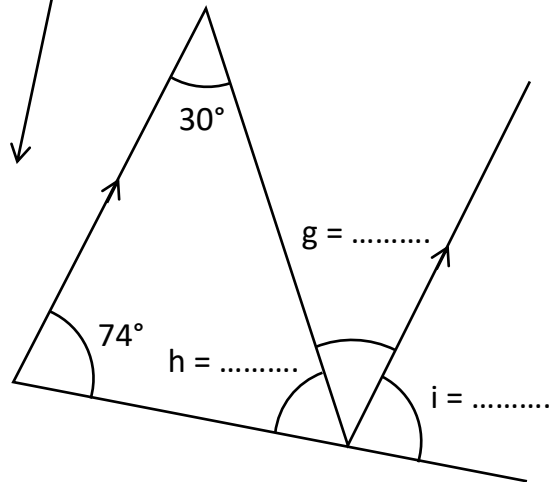
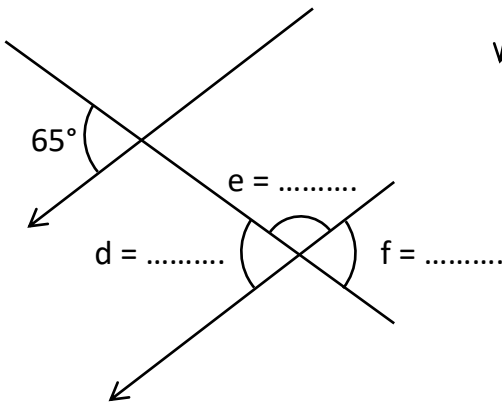
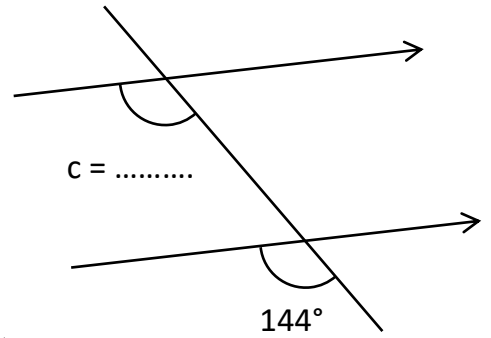
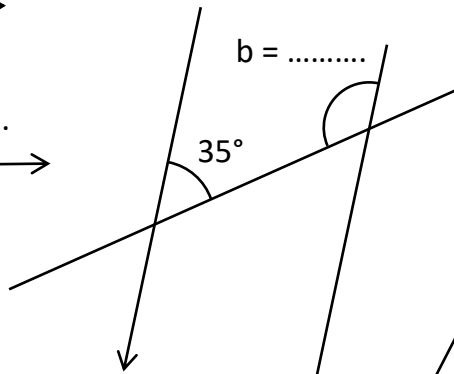
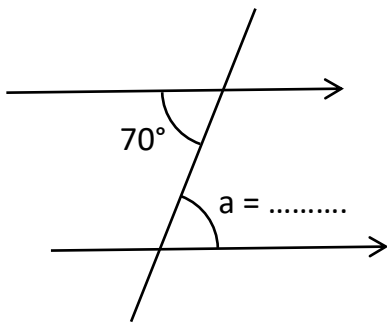
(c)



.....

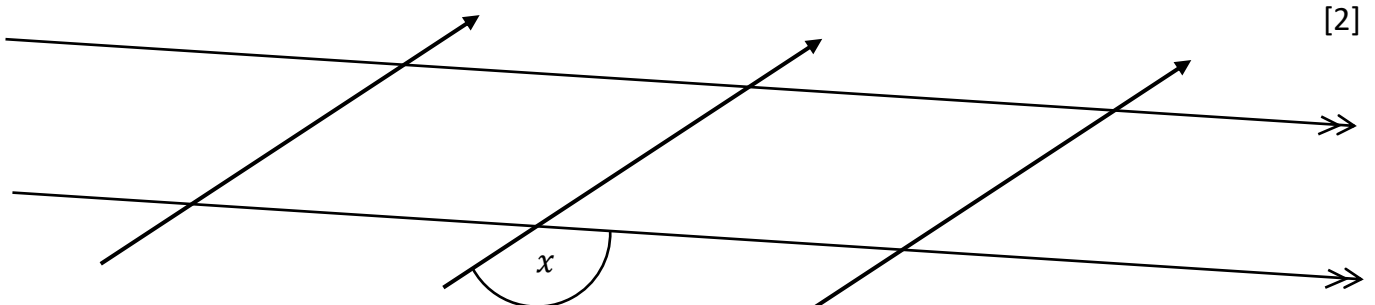
[3]

2. Calculate the size of the marked angles. (The diagrams are not drawn to scale.)



[9]

3. Mark every angle that is equal to the size of angle x .

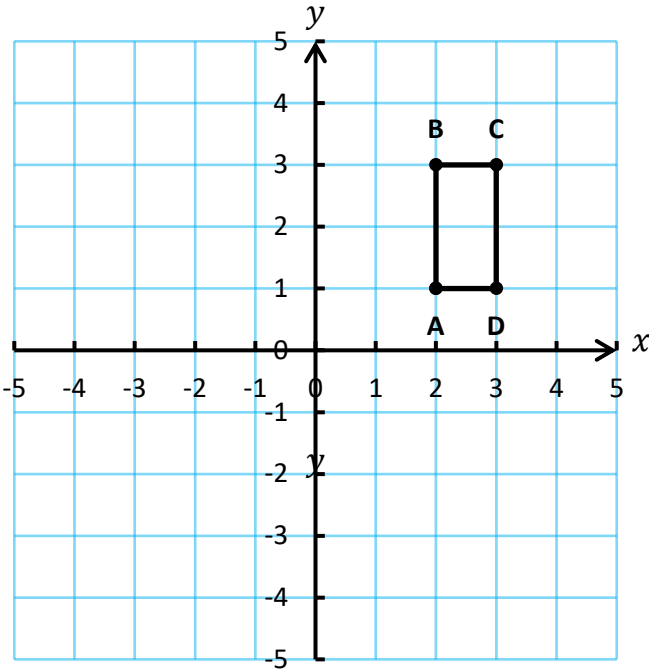


[2]

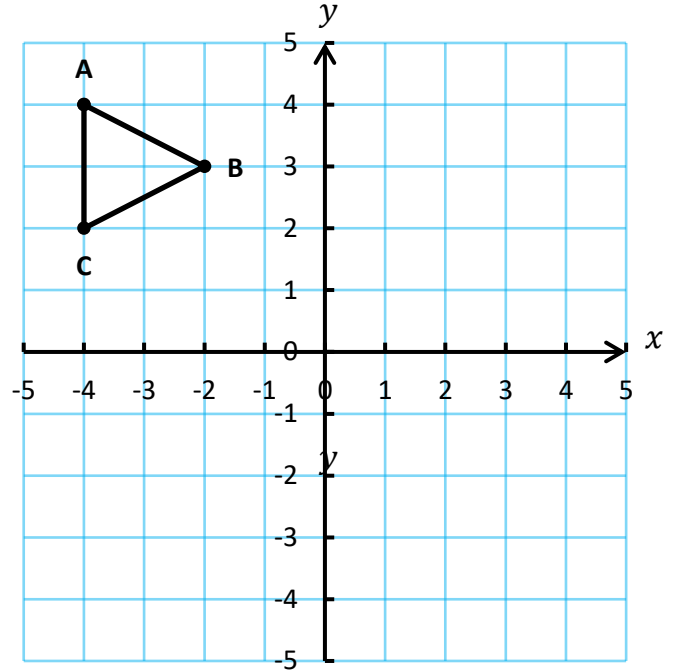
Pop Quiz: Rotation

Name:

(a) Rotate the rectangle **ABCD** 90° clockwise around the origin.

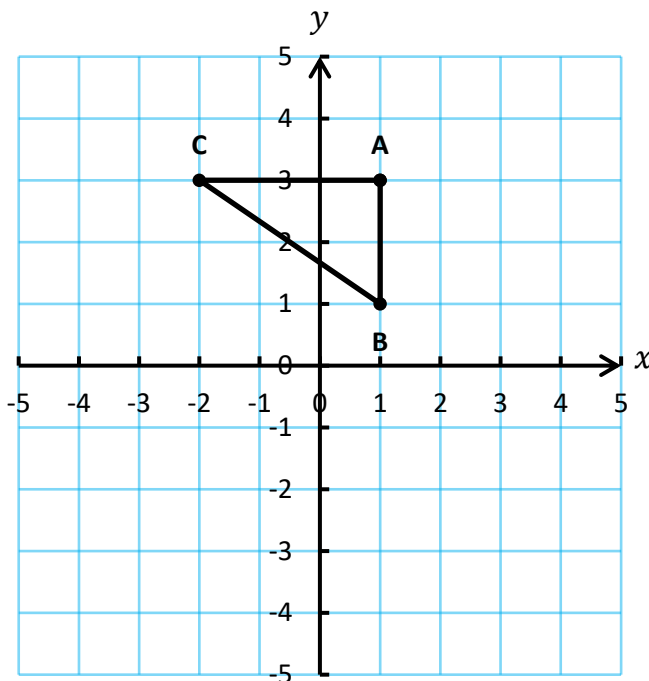


(b) Rotate the triangle **ABC** 90° counter-clockwise around the point $(-2, 1)$.

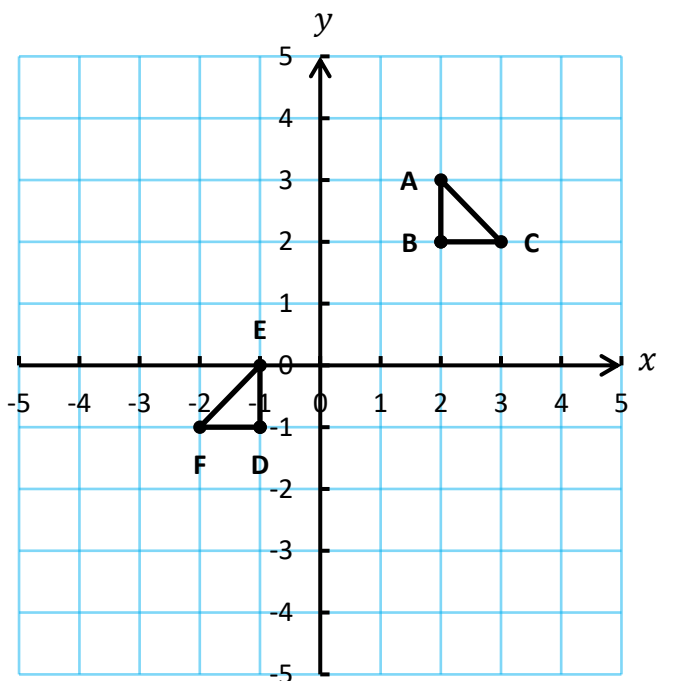


[4]

(c) Rotate the triangle **ABC** 180° clockwise around the point $(1, 0)$.



(d) What type of rotation changes the triangle **ABC** to the triangle **DEF**?



.....

[4]