"BETWEEN PAPERS" PRACTICE

SET 1 OF 1 - F&H (MOST QUESTIONS)

SUMMER 2018

QUESTIONS

NOT A "BEST" GUESS PAPER.

NEITHER IS IT A "PREDICTION" ... ONLY THE EXAMINERS KNOW WHAT IS GOING TO COME UP! FACT! YOU ALSO NEED TO REMEMBER THAT JUST BECAUSE A TOPIC CAME UP ON PAPER 1 OR PAPER 2 IT MAY STILL COME UP ON PAPER 3 ...

WE KNOW HOW IMPORTANT IT IS TO PRACTICE, PRACTICE, PRACTICE .... SO WE'VE COLLATED A LOAD OF QUESTIONS THAT WEREN'T EXAMINED IN THE OCR 9-1 GCSE MATHS PAPER 1 OR PAPER 2 BUT WE CANNOT GUARANTEE HOW A TOPIC WILL BE EXAMINED IN THE NEXT PAPERS ...

ENJOY!
MEL & SEAGER

1. Round 341.537

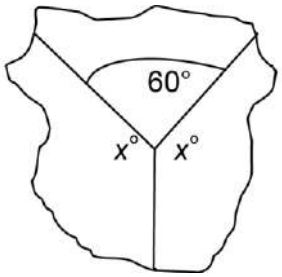
i. to 2 decimal places,

..... **[1]**

ii. to 1 significant figure.

..... **[1]**

2. Three **regular** polygons meet at a point.

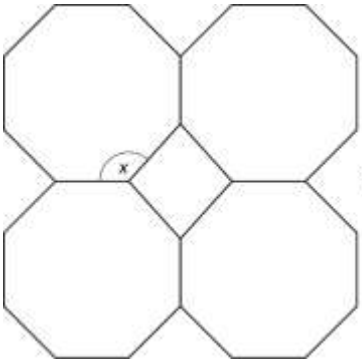


Not to scale

Find the number of sides of each of the three regular polygons in the diagram.

.....and.....and..... **[6]**

3. This sketch shows four identical regular octagons and a square.

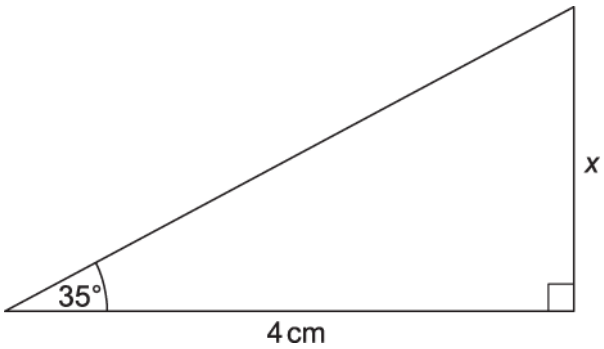


Not to scale

Work out angle *x*.
Give a reason for each step of your working.

..... ° **[4]**

4. The diagram shows a right-angled triangle.



Not to scale

Calculate *x*.

..... cm **[3]**

5. Use numbers from this box to complete the statements.

0	1	$\sqrt{2}$	$\sqrt{3}$
$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{3}}$	$\frac{\sqrt{3}}{2}$

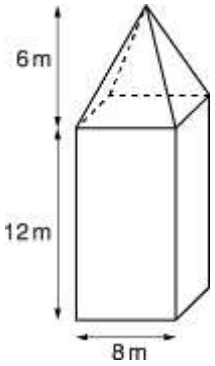
i. tan 45° = ...

ii. cos 30° = ...

[1]

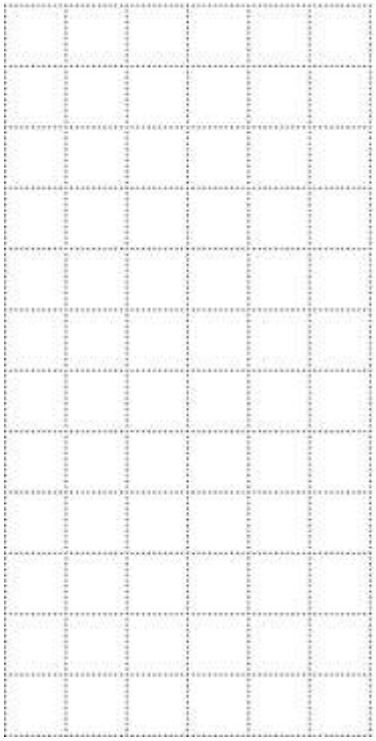
[1]

6. A tower is in the shape of a cuboid with a pyramid on top.
The base of the tower is a square of side 8 m and it has a **total** height of 18 m.

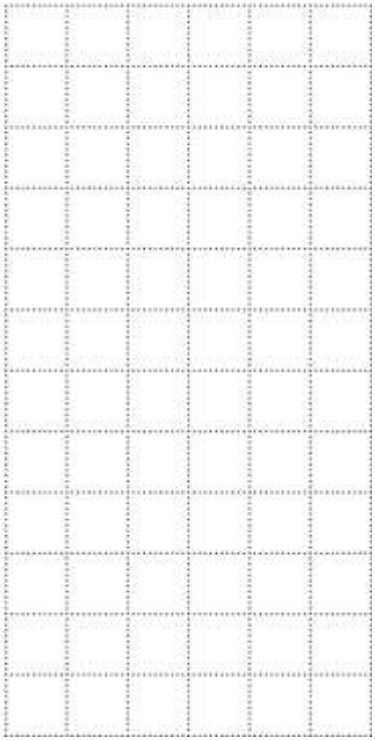


On the grids below draw accurately the plan and the front elevation of the tower.
Use a scale of 1 cm to 2 m.

Plan



Front Elevation



[4]

7. Here are six equations of straight lines, each labelled with a letter.

A $y = 4x - 7$	**B** $y = 3x + 14$	**C** $y = 2x + 5$
D $y = -3x + 1$	**E** $y = 14x - 7$	**F** $y = 4x + 3$

Choose the correct letters to make each statement true.

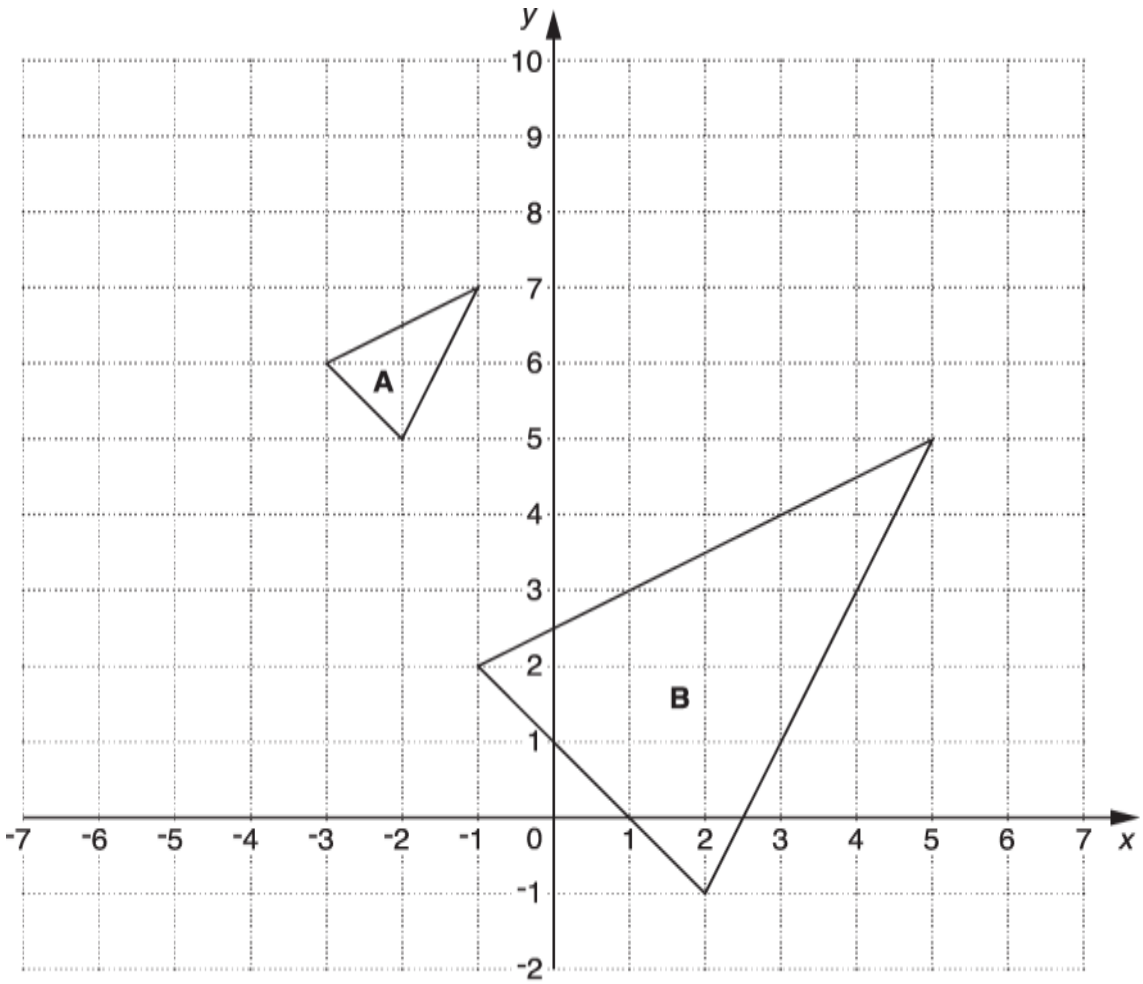
Line ..... is the steepest line.

Lines ..... and ..... are parallel.

Lines ..... and ..... meet on the y-axis.

[3]

8. Triangles **A** and **B** are drawn on the grid.



i. Translate triangle **A** by $\begin{pmatrix} -3 \\ -1 \end{pmatrix}$.

Label the image **C**.

[2]

ii. Describe fully the enlargement that maps triangle **A** onto triangle **B**.

[2]

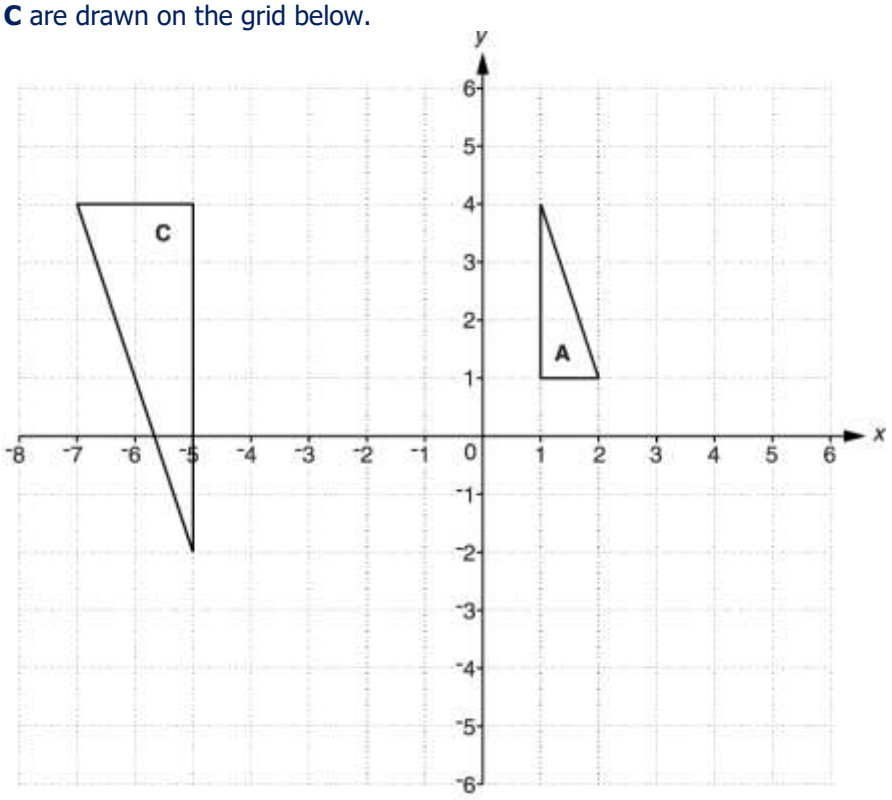
9. Solve.

$$4x + 3y = 5$$
$$2x + 3y = 1$$

$x =$ .....

$y =$ ..... **[3]**

10. Triangles **A** and **C** are drawn on the grid below.



Triangle **B** is the image of triangle **A** after:

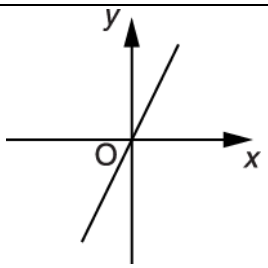
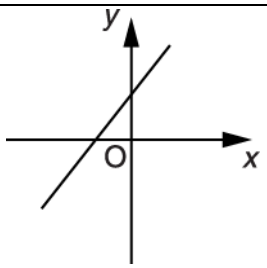
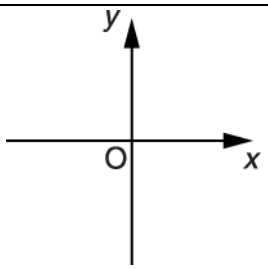
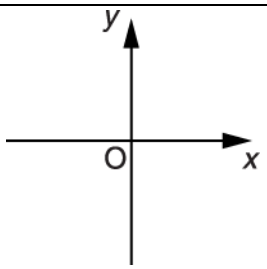
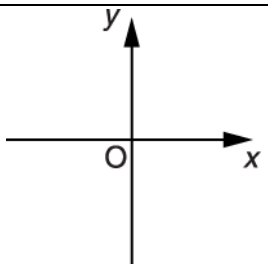
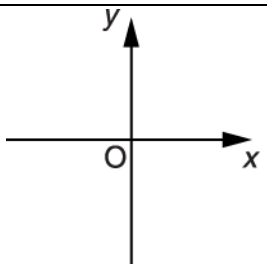
- a rotation of 90° clockwise about the origin, followed by
- a translation of $\begin{pmatrix} -5 \\ -1 \end{pmatrix}$.

Draw and label triangle **B** on the diagram.

[4]

11. Each statement below is sometimes true and sometimes false.

For each statement sketch a graph to show an example where it is true and an example where it is false.
The first one has been done for you.

Statement	True	False
A straight line graph goes through the origin.		
The gradient of a straight line graph is positive.		
A quadratic equation $ax^2 + bx + c = 0$ has two positive solutions.		

[3]

12. Factorise fully.

$$6xy - 12x^2$$

..... **[2]**

13. In Westercote, house prices rose by 6% from 2010 to 2011.

On 1 January 2011 another a house was priced at £371 000.

Calculate its price on 1 January 2010.

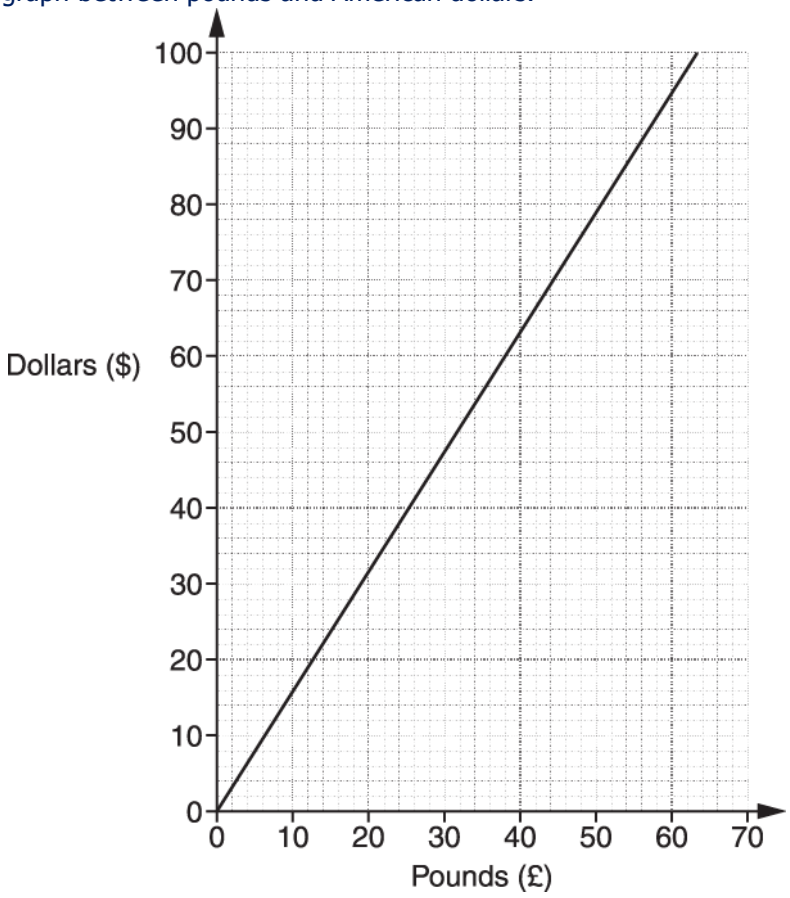
£ ..... **[3]**

14. Gwen is taking her class of 28 pupils to a pantomime.
The total cost of the trip is £575.

Use estimation to find an approximate cost of this trip for each pupil.
Show your working clearly.

..... ÷ ..... = ... **[2]**

15. This is a conversion graph between pounds and American dollars.



i. Hilary changed £30 into dollars.

Use the graph to find how many dollars she received.

(a)(i) $ ..... **[1]**

ii. Umar changed $66 into pounds.

Use the graph to find how many pounds he received.

(ii) £ ..... **[1]**

16(a). Factorise.

$x^2 - 9$

..... **[1]**

(b). Factorise.

$x^2 - 4x + 3$

..... **[2]**

(c). Use your answers to parts **(a)** and **(b)** to simplify this expression.

$$\frac{x^2 - 4x + 3}{x^2 - 9}$$

..... **[1]**

17. Chris has £2500 to invest for 3 years.
He finds this information about two savings accounts paying compound interest.

BONUS ACCOUNT	FIXED RATE ACCOUNT
3.5% interest for first year then 3% interest per year	3.25% interest per year fixed rate for 3 years

Advise Chris which account he should choose, and find how much money he will have at the end of the 3 years.

..... account

£ ..... **[5]**

18(a). Factorise.

$x^2 + 2x - 15$

..... **[2]**

(b). Hence solve this equation.

$x^2 + 2x - 15 = 0$

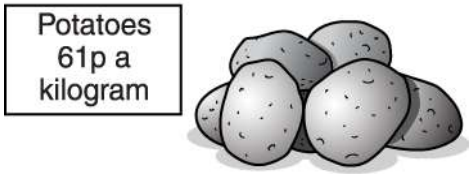
..... **[1]**

(c). Simplify fully.

$$\frac{x^2 + 2x - 15}{x^2 - 9}$$

..... **[2]**

19. **Estimate** how much Maria will pay for 2.9 kg of these potatoes.
Show the values you use.



..... **[3]**

20. Kieran took a Maths test and a Science test in September.
These are his test scores.

Maths	Science
11 out of 20	7 out of 10

In November, Kieran took another Maths test and another Science test.
These are his new scores.

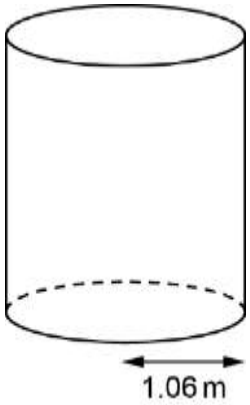
Maths	Science
30 out of 50	18 out of 25

Kieran says, "I have improved in both Maths and Science."

Is Kieran correct?
Support your answer with evidence.

[4]

21. Weight is measured in newtons (N).
A cylinder of ice of weight 5940 N rests on a horizontal surface.
The base of the cylinder has radius 1.06 m.



Hannah estimates that the pressure exerted by the cylinder on the surface is 1000 N/m^2.

Show that Hannah's estimate is incorrect.

[4]

22. Emma invests £5760 in a savings account.
The account pays a fixed rate of 2.4% per year compound interest.

Calculate how much money is in the account at the end of 3 years.

£ ..... **[3]**

23. The area of St Petersburg is 605.8 km^2.

Write 605.8 correct to the nearest ten.

..... **[1]**

24. Here are parts of three recipes for fruit punch.

Recipe A	Recipe B	Recipe C
150 ml pineapple juice	220 ml pineapple juice	175 ml pineapple juice
.....	.....	.....
.....	.....	.....
makes 850 ml	makes 1200 ml	makes 1 litre

Which of these three has the highest **proportion** of pineapple juice?
Show clearly how you decide.

.....
[3]

25. A sandwich shop has these 40 sandwiches for sale one morning.

- 10 tuna
- 20 ham
- 7 chicken
- 3 cheese

By the afternoon, 30 of the sandwiches have been sold.
Here are some facts about the 10 sandwiches left.

- There are three types of sandwich left.
- If one sandwich is chosen at random, it is evens that it will be tuna.
- If one sandwich is chosen at random, it is less likely to be chicken than cheese.

Work out one possible combination of the types and numbers of the 10 sandwiches left.

[3]

END OF QUESTION PAPER