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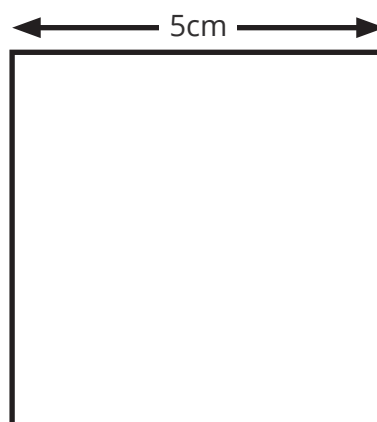
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Year 11 Baseline Test

GCSE Foundation Maths Paper 3 (Calculator)

Time allowed: 1 hour 30 minutes (80 Marks)

Name _____

Date _____

1. a. Round 1 324 999 to the nearest thousand.

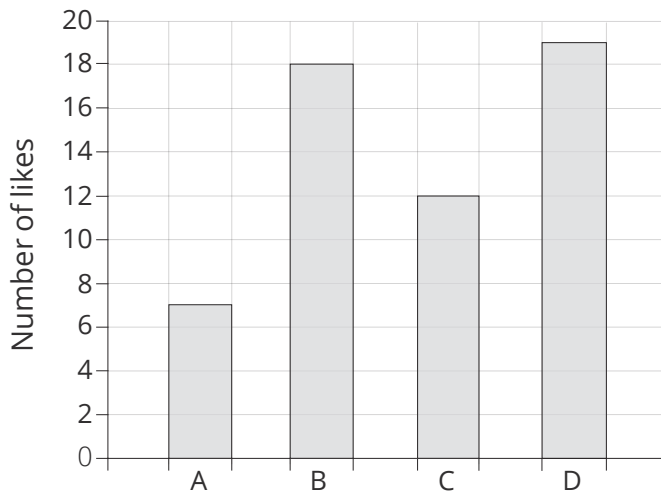
[1]

- b. Jo says that $52.3 \times 19.7 = 103.031$
 Laura says that $52.3 \times 19.7 = 1030.31$

Use approximation to show that Laura is closer to the correct answer.

[2]

2. Samantha posts 4 photographs on her social media site. A is a picture of her winning a race, B is a picture of her dog, C is a picture of her new handbag and D is a picture of a chocolate bar. The bar chart shows how many likes each post received:



- a. How many likes did Samantha receive for photos B, C and D, in total?

[1]

- b. Everyone who liked the picture of the dog was either a friend or a family member of Samantha. 4 more friends like the picture than family members. How many of the people who liked the photograph were family members?

[2]

- c. Samantha says the picture of her winning the race received $\frac{1}{7}$ of the total likes for pictures B, C and D. Is she correct? Show your working.

[1]



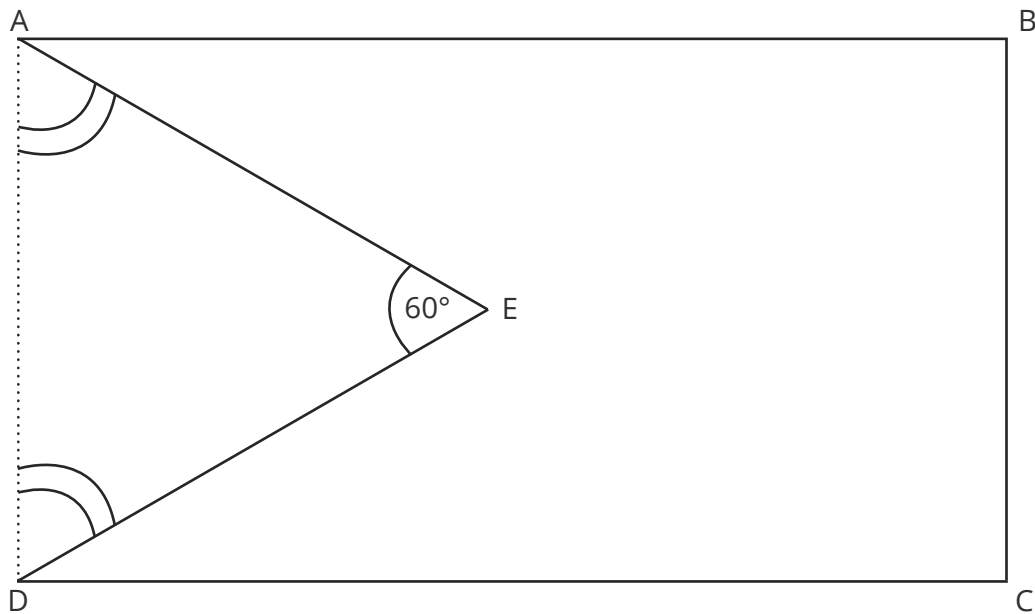
3. a. Write $\frac{29}{100}$ as a decimal, rounded to 1 decimal place.

[1]

- b. I measure the length of my foot in metres then round this measurement to 2 decimal places. The result is 0.31m. What is the shortest my foot could be? Give your answer in cm.

[2]

4. Rectangle ABCD is three times as long as it is wide. Angle DAE = angle ADE. Angle AED = 60° . Find the ratio of the perimeter of pentagon ABCDE to the perimeter of rectangle ABCD. Give your answer in its simplest form. You must show all relevant working.



[6]



5. A function machine takes a positive number, adds 4 and squares the result.

a. If 9 is the input, what is the output?

[1]

b. If 81 is the output, what was the input?

[2]

c. A number is put into the machine. The output is put into the machine again, giving a second output of 841. What number was originally put into the machine?

[2]

6. 5 litres of olive oil can be bought at Leroy's supermarket for £6.80.

2.4 litres of the same olive oil can be bought for £3.24 from the local grocery.

Which shop gives better value for money? You must show all relevant working.

[3]

7. a. Explain why $2(s + 4) = 2s + 8$ is an identity and $5m + 7 = 15$ is an equation.

[2]

b. Explain why $5x > -4$ is an inequality and $6x + 4$ is an expression.

[2]



8. Barry says that the difference of two cube numbers is never a prime number. Using a counter example, show that Barry is incorrect.

[2]

9. At Ryan's beach sandwich bar, customers can choose between 3 types of filling, 2 different types of bread and 2 different dressings.

Assuming every customer chooses exactly one item from each section, complete the table to show every possible sandwich combination. One has been completed for you.

Filling	Bread	Dressing
Meat	Italian	Garlic
Cheese	Wholemeal	Ketchup
Vegan		

[2]

Filling	Bread	Dressing
Meat	Italian	Garlic

10. It takes 8 hours for Barbara and Jane to knit 5 pairs of mittens. If Jane and Barbara knit at the same speed, how long will it take Barbara to knit exactly 3 single mittens?

[3]



11. a. Find the n^{th} term of the sequence:

10, 17, 24, 31, 38, ...

[2]

- b. A Fibonacci sequence has the same first two terms as the sequence in part a. What is the 4th term of this Fibonacci sequence?

[2]

12. Brooke wants to know how many grains of rice are in her bag of wild rice, but she does not want to count them all individually. She fills a small glass with some of the grains then counts the grains in the glass. There are 325. She puts these grains into a container then continues to empty grains of rice from the bag into the glass then into the container. Altogether, the bag of rice contained 43 glasses full of grains.

- a. Estimate the number of grains of rice that were in the bag.

[1]

- b. Give a reason why this number is an estimate.

[1]

- c. When Brooke counted the grains in the first cup, she noticed that 221 of them were white and the rest were brown. Estimate the number of white grains in the bag of wild rice.

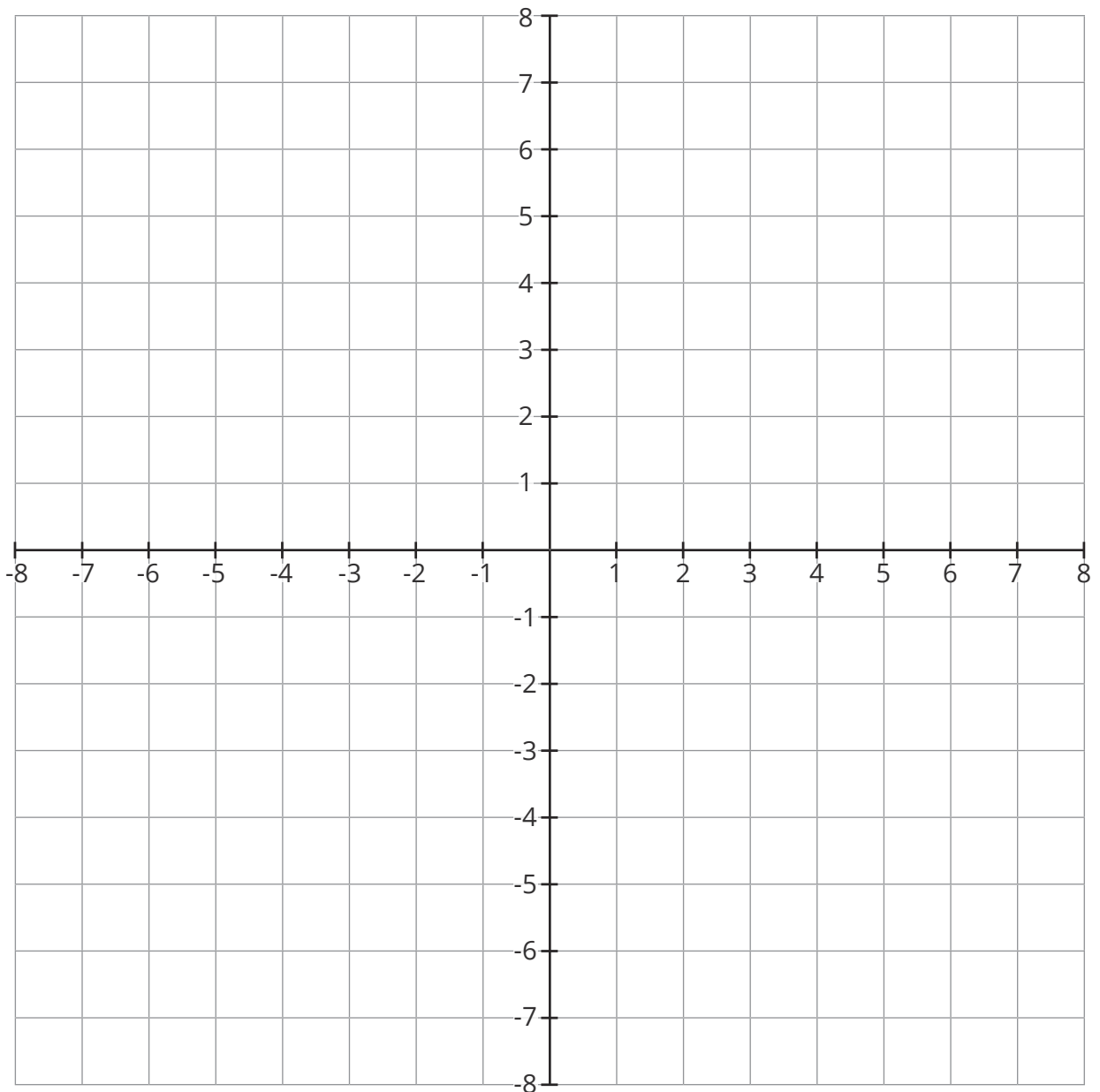
[1]

- d. Give a reason (different to the reason you used in part b) why this is an estimate and unlikely to be the actual number of white grains in the bag of wild rice.

[1]



13. a. On the axis below, plot triangle ABC, with vertices as follows $A = (2, 2)$, $B = (4, 2)$ and $C = (2, 6)$ [1]
- b. Draw and label the line $x = -2$ [1]
- c. Reflect triangle ABC in the line $x = -2$ [1]
- d. When triangle ABC is translated using the vector $\begin{pmatrix} c \\ -2 \end{pmatrix}$, the point A moves to $(5, 0)$.
What is the value of c ? [1]
-
- e. Enlarge triangle ABC, by scale factor $\frac{1}{2}$ and $(0, 0)$ as the centre of enlargement. [2]





14. A shopkeeper notices that on days when there is a lot of rain, she usually sells more umbrellas.
- a. What sort of correlation do you think there would be; negative or positive? Give a reason for your answer.

[1]

- b. On a very rainy day the shopkeeper didn't sell any umbrellas. This would be known as an _____.

[2]

Give a reason why she might not have sold any umbrellas that day.

15. Victor is going to invest £1250 in the Super Saver Account. Round your answers to the nearest penny.

Super Saver Account

Interest rate
1.5% per year

- a. How much will his investment be worth after 5 years if the interest is compound?

[2]

- b. How much less interest would Victor get in this time if it was simple interest?

[3]



16. a. Expand and simplify $(x + 4)(3x - 2)$

[2]

- b. Factorise $x^2 - x - 6$

[2]

17. a. 110 flapjacks cost \$36.30 in the USA. In the UK, it costs £29.90 for 115 flapjacks. If the value per flapjack is equivalent on a particular day, what is the value of \$1 on that day, in pounds?

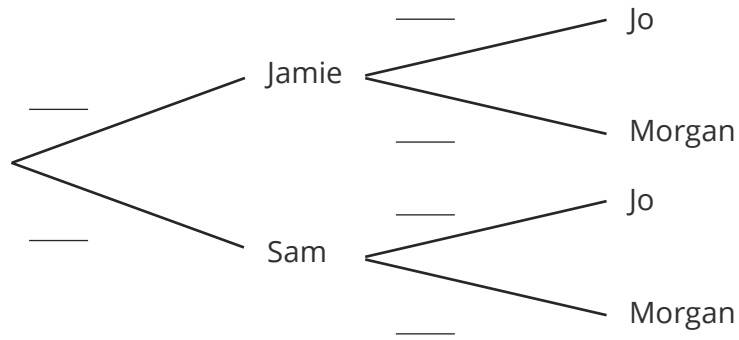
[4]

- b. A coat is bought in a 25% off sale for £99. What was the price of the coat before the discount was applied?

[3]



18. Jamie, Sam, Jo and Morgan make it to the semi-finals of a school tennis competition. The probability that Jamie will reach the final is 0.6 and the probability that Jo will reach the final is 0.8.



- a. Complete the probability tree diagram. [2]
- b. What is the probability that Sam plays Jo in the final? [1]

- c. Calculate the probability that at least one of the players in the final has a name that begins with J. [3]

19. a. A rectangle has length 6cm and width 3cm. What is the length of the diagonal? Give your answer correct to 1 decimal place. [3]

- b. What is the size of the angle between the diagonal and the shorter side of the rectangle? Give your answer correct to 1 decimal place. [3]

