

Name: _____

Exam Style Questions

Challenge Paper Foundation Tier



Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents



1. Some people went to a football match.
The ratio of the number of children to the number of adults was 2:9



Each person stood in the terraces or had a seat in the stand.

$\frac{2}{5}$ of the children stood in the terraces.

24 of the children sat in the stand.

There are exactly 250 seats in the stand.

Were there people on more than 85% of the seat?

.....
(4)

2. The volume of a cube is 125cm^3



Work out the surface area of the cube.

.....
(2)

3. A number, n , is rounded to 1 decimal place.

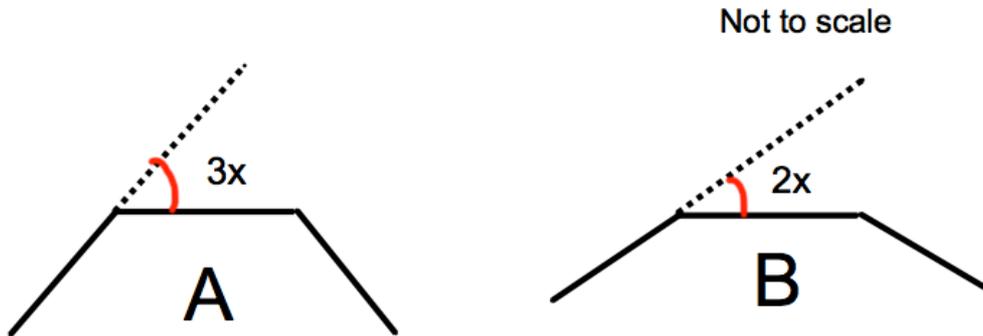


The result is 5.6

Using inequalities, write down the error interval of n .

.....
(2)

4. A has 10 sides and exterior angle $3x$.
B has exterior angle $2x$.



Work out the number of sides regular polygon B has.

.....
(5)

5. In England, a 10 mile train journey costs £6.40
In Ireland, a 20km train journey costs €10.85



1 mile = 1.6 km
At the time £1 = €1.40

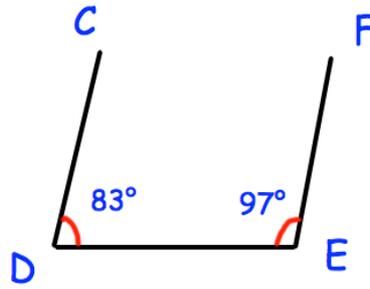
Which train journey is better value?

(4)

6.



Diagram **not**
drawn accurately



Nigel says “the lines CD and EF are parallel.”
 Tim says “the lines CD and EF are **not** parallel.”

Who is correct?

.....

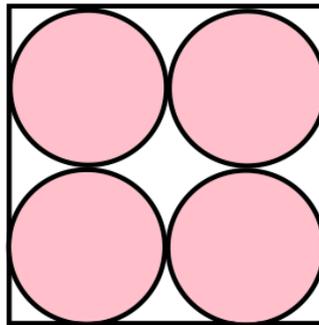
Give a reason for your answer.

.....

.....

(2)

7. A logo is designed that has four pink circles within a white square.



16cm

The square has side length 16cm.
 Find the percentage of the logo that is white.

.....%

(5)

8. In a class, there are 20 girls and 10 boys.



The class sit a test.

The mean result of the 20 girls is 60%

The mean result of the 10 boys is 50%

Work out the mean result of all the students

.....%

(3)

9. There are red, pink and white sweets in a bag.



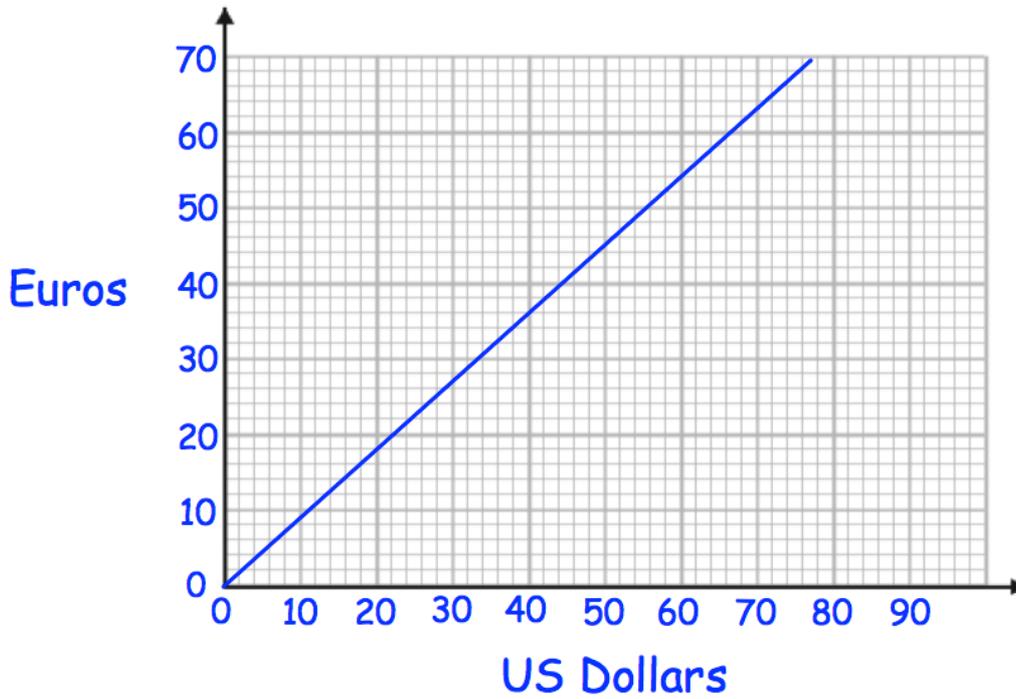
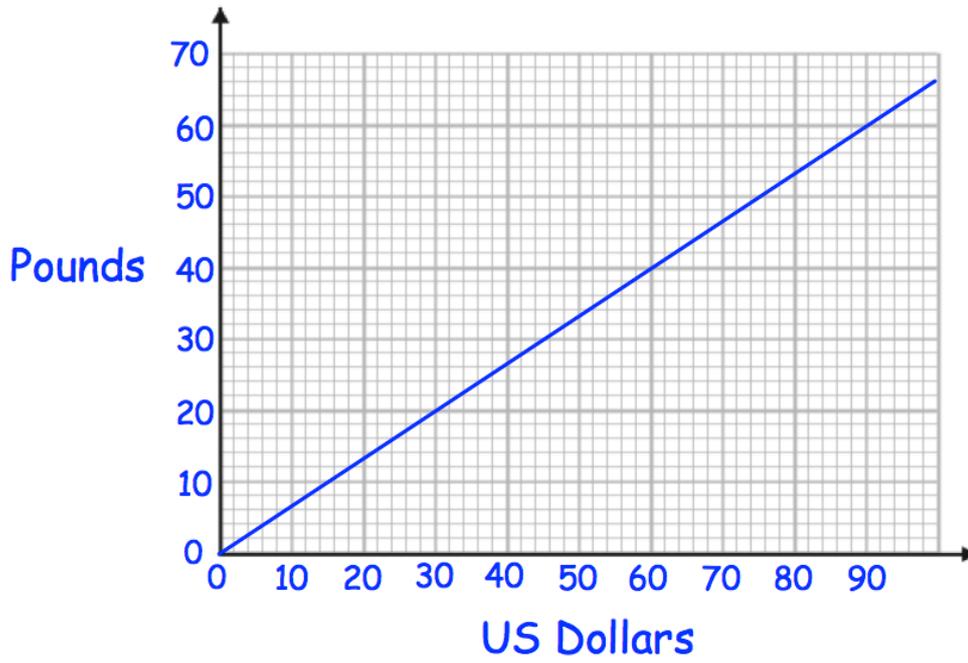
The ratio of red to pink to white sweets is 8 : 13 : 4

What percentage of the sweets are pink?

.....

(2)

10.



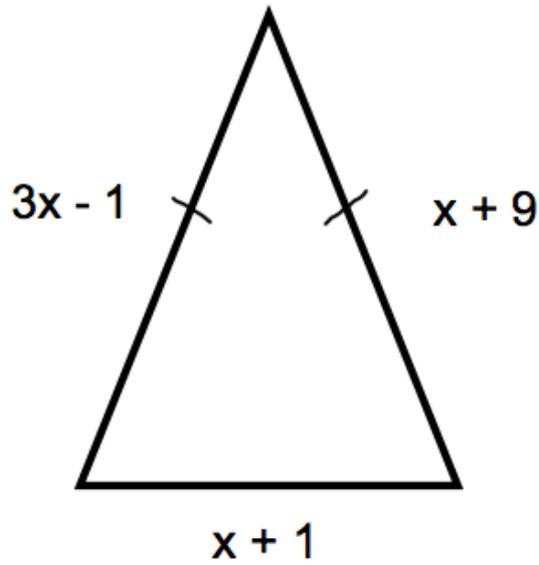
(a) Change £30 into Euros.

.....Euros
(2)

(b) Change 200 Euros into Pounds (£)

£.....
(2)

11. Shown below is an isosceles triangle. Each side is measured in centimetres.



Calculate the perimeter of the triangle.

.....cm
(6)

12. A radioactive substance decays over time.
Every year its mass decreases by 14%.



How many years will it take for 500kg of the substance to decay to a mass less than 200kg?

.....years
(3)

13. There are 6000 people at an ice hockey match.
The announcer says this is exactly 40% more people than the previous match.
Explain why the announcer is incorrect.



(4)

14. A phone box is located near three houses, A, B and C.



$$1\text{cm} = 200\text{m}$$

Railway



A •

• B

•
C

The phone box is less than 500m from the railway track.
The phone box is between 300m and 500m from house A.
The phone box is closer to house C than house B.

Shade the region on the map where the phone box could be located.

(5)

15. A bag has red and yellow sweets.
Some of the sweets are fizzy.
 All the other sweets are bonbons.

The ratio of the number of red sweets to the number of yellow sweets is 6 : 5

The ratio of the number of red fizzy sweets to the number of red bonbons is 1 : 2

The ratio of the number of yellow fizzy sweets to the number of yellow bonbons is 3 : 4

What fraction of all the sweets are fizzy?

(4)

16. The table shows information about the protein content of yoghurt bars.



	per 100g	per bar
Protein	5.75g	2.3g

The yoghurt bars are sold in 520g packs.

(a) Work out how many bars there are in a pack.

.....
(2)

Snack size yoghurt bars are made using the same recipe.

Snack size bars are sold in 140g packs.

There are 5 bars in each pack.

(b) Complete the table for the snack size biscuits.

	per 100g	per snack size bar
Protein	5.75g	

(3)

17. Find the value of the reciprocal of 3.2



Write your answer as a decimal

(1)

18. The speed limit on a road is 50 mph.



A car drives 19 miles in 22 minutes.

Is the car breaking the speed limit?
You must show your workings.

(3)

19. The bearing of A from B is 098° .
Find the bearing of B from A.

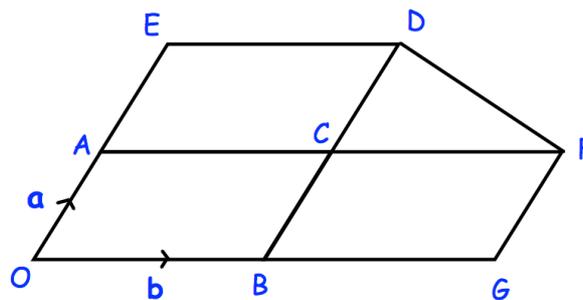


.....^o
(2)

20. In the diagram OBDE and OAFG are parallelograms.
B is the midpoint of OG.
A is the midpoint of OE.



$\vec{OA} = \mathbf{a}$ and $\vec{OB} = \mathbf{b}$



Express, in terms of \mathbf{a} and \mathbf{b} , the following vectors.
Give your answers in their simplest form.

(i) \vec{OC}

.....
(1)

(ii) \vec{BA}

.....
(1)

(iii) \vec{DF}

.....
(1)

21.

The equations of five lines are given below.



Line A $y = 2x + 3$

Line B $y = \frac{1}{2}x - 3$

Line C $y = 6 - x$

Line D $y - 2x = 7$

Line E $y + 2x = 3$

Which two lines are parallel?

..... and

(2)

22.

Three bananas and two pears cost 95p.

Five bananas and three pears cost £1.51



Find the cost of ten bananas and ten pears.

.....

(4)

23.

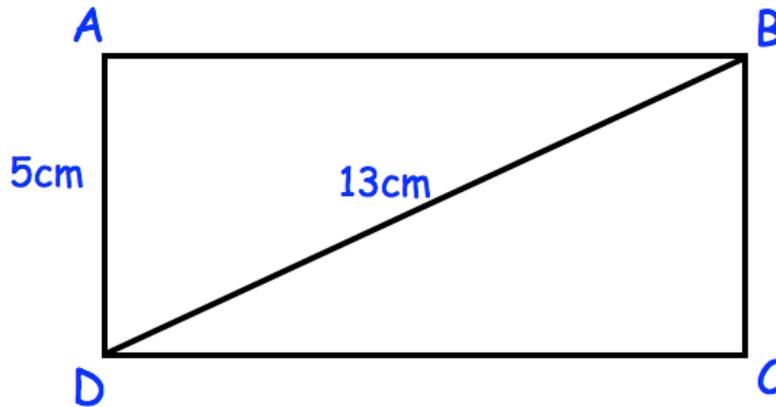


Thomas is 3 years older than Fiona.
Cara is twice as old as Fiona.
The sum of their ages is 51.

Find the ratio of Cara's age to Thomas's age.

.....
(4)

24. Below is rectangle, ABCD



AD = 5cm
BD = 13cm

Calculate the perimeter of rectangle ABCD

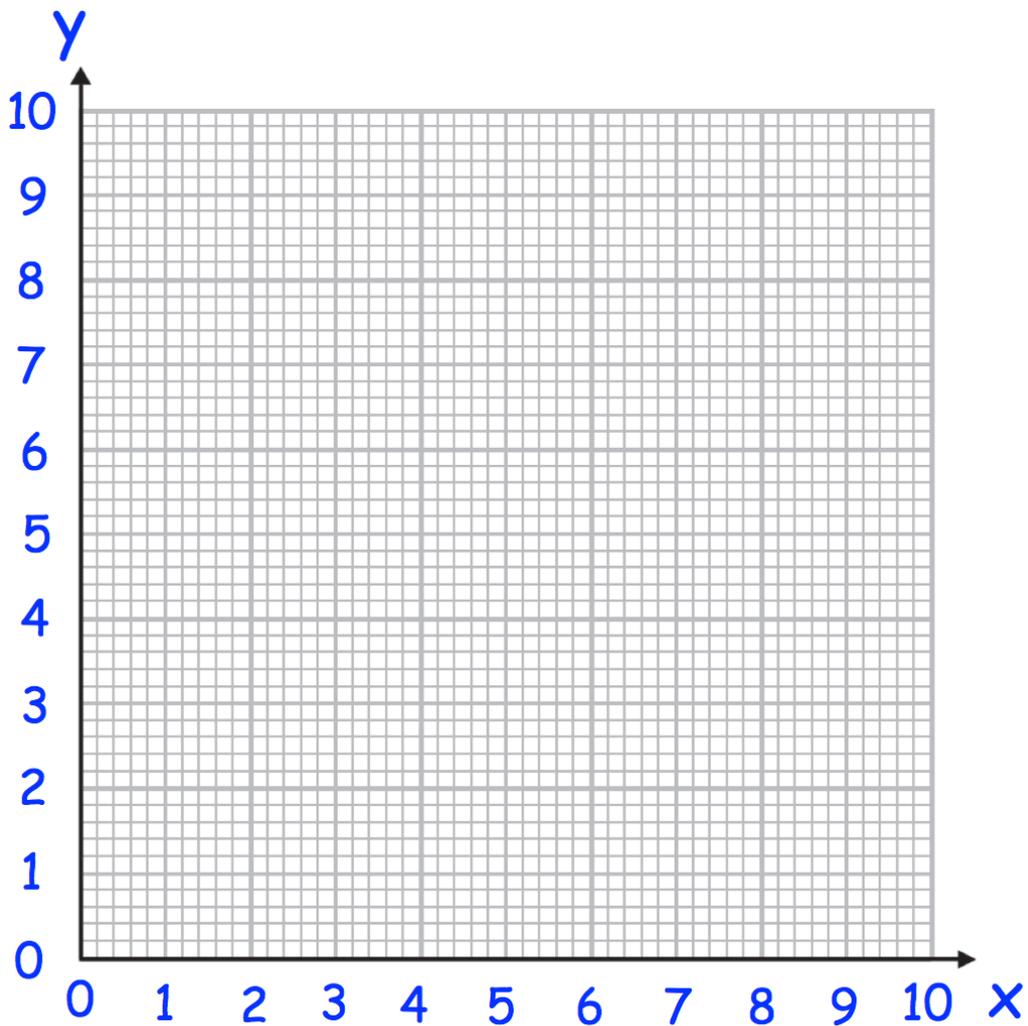
.....cm
(3)

25. (a) Complete the table of value for $y = \frac{4}{x}$

x	0.5	1	2	4	8	10
y						

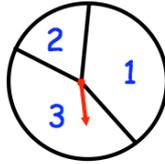
(2)

(b) On the grid, draw the graph of $y = \frac{4}{x}$ for $0.25 \leq x \leq 10$



(2)

26. Shown is a spinner.



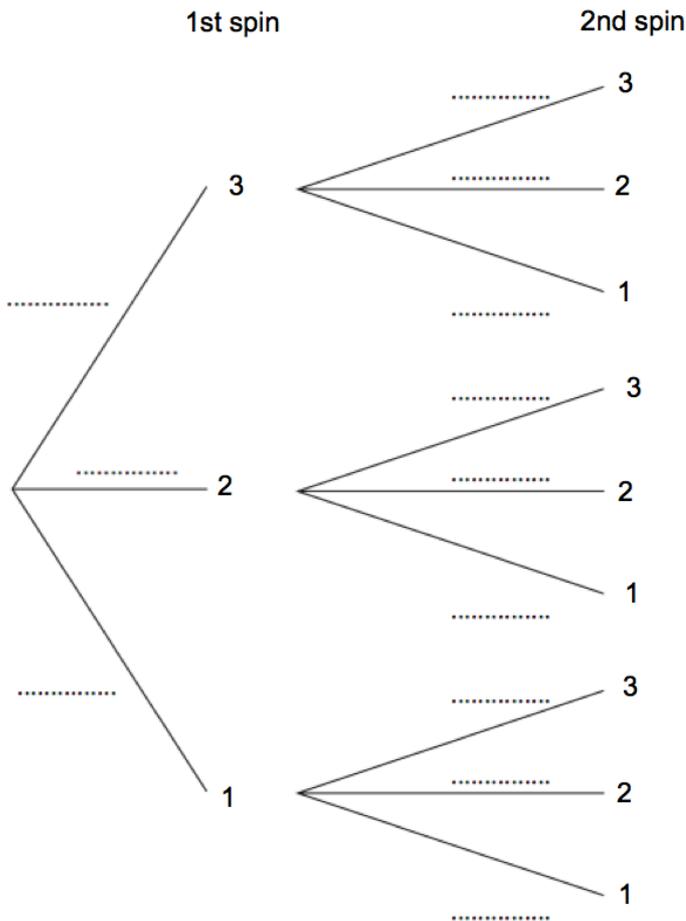
The probability of a 1 is $2x$.
 The probability of a 2 is x .
 The probability of a 3 is $2x$.

(a) Calculate the value of x .

.....
(2)

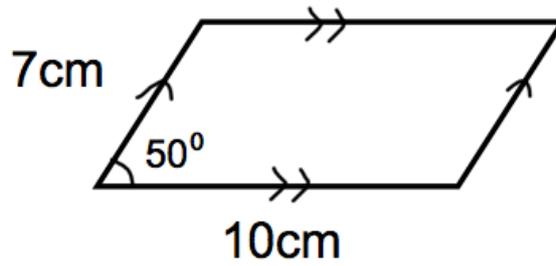
The spinner is spun twice and the scores are added together.

(b) Work out the probability of the final score being 4.
 You may use the tree diagram to help you.



.....
(4)

27. Shown below is a parallelogram.



Calculate the area of the parallelogram.

.....cm²
(5)

28. Material A has a density of 5.8g/cm³.
Material B has a density of 4.1g/cm³.



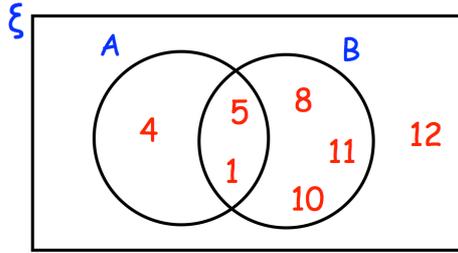
377g of Material A and 1.64kg of Material B form Material C.

Work out the density of Material C.

.....g/cm³
(4)

Here is a Venn diagram.

29.



A number is chosen at random.

(a) Write down $P(A \cap B)$

.....
(2)

(b) Write down $P(A \cup B)$

.....
(2)

30. Write down the exact value of $\sin 90^\circ$



.....
(1)