

Name: solutions

GCSE 9-1 Foundation
Practice Paper
Set B
Paper 2 - Calculator



Corbettmaths

Equipment

1. A black ink ball-point pen.
2. A pencil.
3. An eraser.
4. A ruler.
5. A pair of compasses.
6. A protractor.
7. A calculator

Guidance

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

Information

1. Time: 1 hour 30 minutes
2. The maximum mark for this paper is 80.
3. You may use tracing paper.

Question	Mark	Available
1		1
2		1
3		1
4		1
5		1
6		2
7		2
8		1
9		4
10		3
11		3
12		2
13		4
14		4
15		3
16		2
17		4
18		3
19		4
20		6
21		2
22		4
23		6
24		5
25		3
26		4
27		4
Total		80

1. Write down the value of the 8 in the number 724.81

eight tenths

(1)

2. List the first three square numbers

1, 4, 9,

(1)

3. (a) Change 8200ml into litres

8.2 L

(1)

- (b) Change 0.3km into metres

300 m

(1)

4. Work out 0.7^3

0.343

(1)

5. Write 82% as a fraction

$\frac{82}{100}$ or $\frac{41}{50}$

(1)

6.

$$\frac{5}{8} \quad \frac{3}{4} \quad \frac{11}{20} \quad \frac{3}{5}$$

Arrange these fractions in order, starting with the smallest.

$$5 \div 8 = 0.625$$

$$3/4 = 0.75$$

$$11/20 = 0.55$$

$$3/5 = 0.6$$

$$11/20, 3/5, 5/8, 3/4$$

(2)

7. (a) Simplify $5w - 3w + 9w$

$$11w$$

(1)

(b) Simplify $b \times 8 \times a$

$$8ab$$

(1)

8. A map has a scale of 1cm : 20 kilometres.
The actual distance between two cities is 153 kilometres.

What is the distance between the cities on the map?

$$153 \div 20 = 7.65$$

$$\dots\dots\dots 7.65 \dots\dots\dots \text{cm}$$

(1)

9. A sequence of numbers is shown below.

1 5 9 13 17

- (a) Find an expression for the n th term of the sequence.

$$4n - 3 \dots\dots\dots$$

(2)

- (b) Explain why 95 will not be a term in this sequence.

$$4n - 3 = 95 \quad 4n = 98 \quad n = 24.5$$

so 95 can't be in the sequence

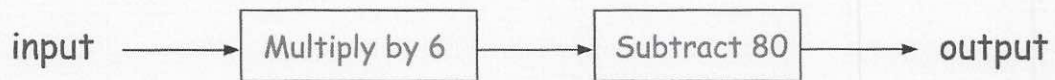
~~or~~

the 24th term is $4 \times 24 - 3 = 93$

the 25th term is $4 \times 25 - 3 = 97$

(2)

10. This function machine multiplies a number by 6 and then subtracts 80.



The input is the same as the output.
Find the input.

$$6x - 80 = x$$

$$5x = 80$$

$$x = 16$$

16

(3)

-
11. During the last ten years, Oliver has played 1200 games of chess.

Oliver has drawn 6% of the games.
He has lost 33% of the games.

Calculate how many games of chess Oliver won.

$$33 + 6 = 39$$

$$100 - 39 = 61$$

$$61\% \text{ of } 1200 =$$

732

(3)

12. There are only pink, yellow, green and blue counters in a bag.

The table shows the probability that a counter taken at random from the bag will be pink, green or blue.

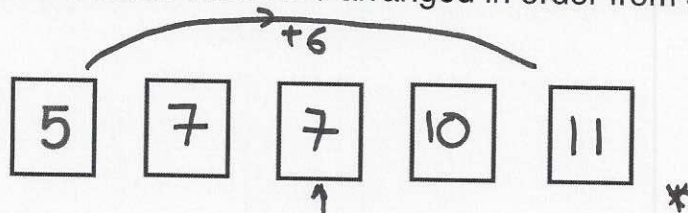
Colour	Pink	Yellow	Green	Blue
Probability	0.5	0.2	0.1	0.2

Work out the probability that the counter taken is yellow

$$1 - 0.5 - 0.1 - 0.2 =$$

0.2
.....
(2)

13. Shown below are five cards which are arranged in order from smallest to largest



The range of the cards is 6.
The median of the cards is 7.
The mean of the cards is 8.

Work out the 4 missing numbers.

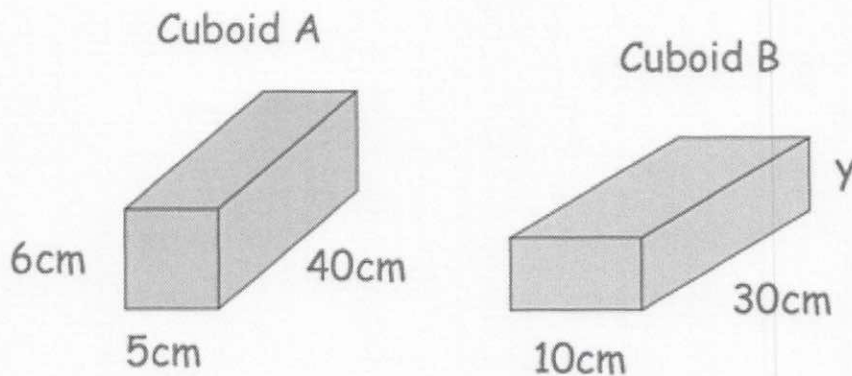
$$\text{mean} = 8 \quad \text{so total} = 40$$

$$40 - 11 - 7 - 5 = 17$$

* or 5 6 7 11 11

(4)

14. Cuboid A and Cuboid B have the same volume.



Calculate y, the missing height of cuboid B.

$$6 \times 5 \times 40 = 1200 \text{ cm}^3 \text{ (volume of A)}$$

$$1200 \div (10 \times 30) = 4$$

4cm
(4)

15. A car is travelling at 40 kilometres per hour.
The car increases its speed to 56 kilometres per hour.

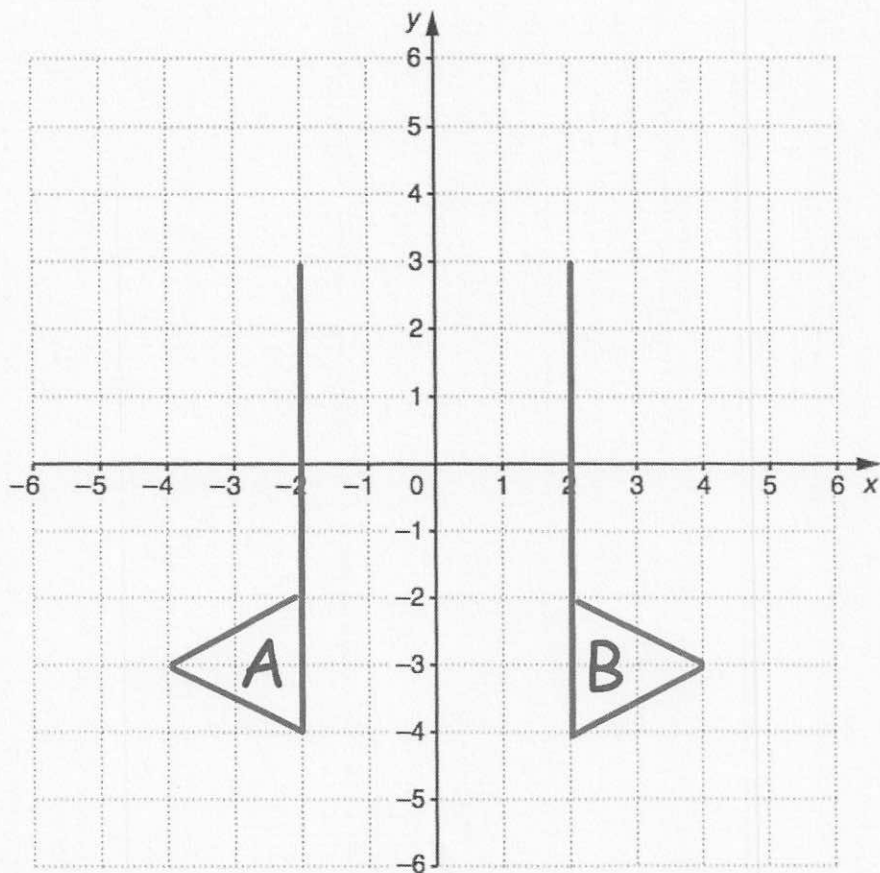
Calculate the percentage increase in the speed of the car.

$$56 - 40 = 16$$

$$\frac{16}{40} \times 100 = 40$$

40%
(3)

16.



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

reflection in the y axis
(the line $x = 0$)

(2)

17. 5.5kg of plums and 2kg of peaches cost a total of £6.26
3.5 kg of plums cost £2.66

Work out the cost of 1kg of peaches.

$$1 \text{ kg of plums } \frac{2.66}{3.5} = £0.76$$

$$5.5 \text{ kg of plums } 0.76 \times 5.5 = £4.18$$

$$2 \text{ kg of peach } 6.26 - 4.18 = £2.08$$

$$2.08 \div 2 =$$

$$£1.04 \dots\dots\dots (4)$$

18. Ellie wants to decrease 860 by 23%.

She types 860×0.23 into her calculator.

(a) Explain why Ellie is wrong.

This only works out 23% 860.

She needs to subtract that answer from 860

(2)

(b) Decrease 860 by 23%

$$860 \times 0.23 = 197.8$$

$$860 - 197.8 =$$

$$662.2 \dots\dots\dots (1)$$

19. (a) Solve $5(x + 3) = 100$

$$5x + 15 = 100$$

$$5x = 85$$

$$x = \frac{85}{5}$$

$$x = \frac{17}{1} \dots\dots\dots (2)$$

(b) Factorise fully $4y^2 - 6y$

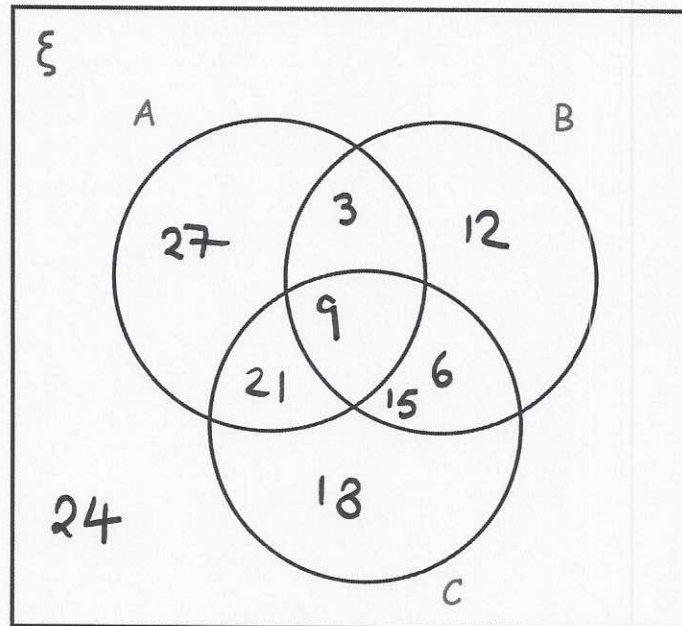
$$= 2y(2y - 3) \dots\dots\dots (2)$$

20. $\xi = \{\text{multiple of 3 between 1 and 29}\}$

$A = \{3, 9, 21, 27\}$

$B = \{3, 6, 9, 12, 15\}$

$C = \{6, 9, 15, 18, 21\}$



(a) Complete the Venn diagram above

(4)

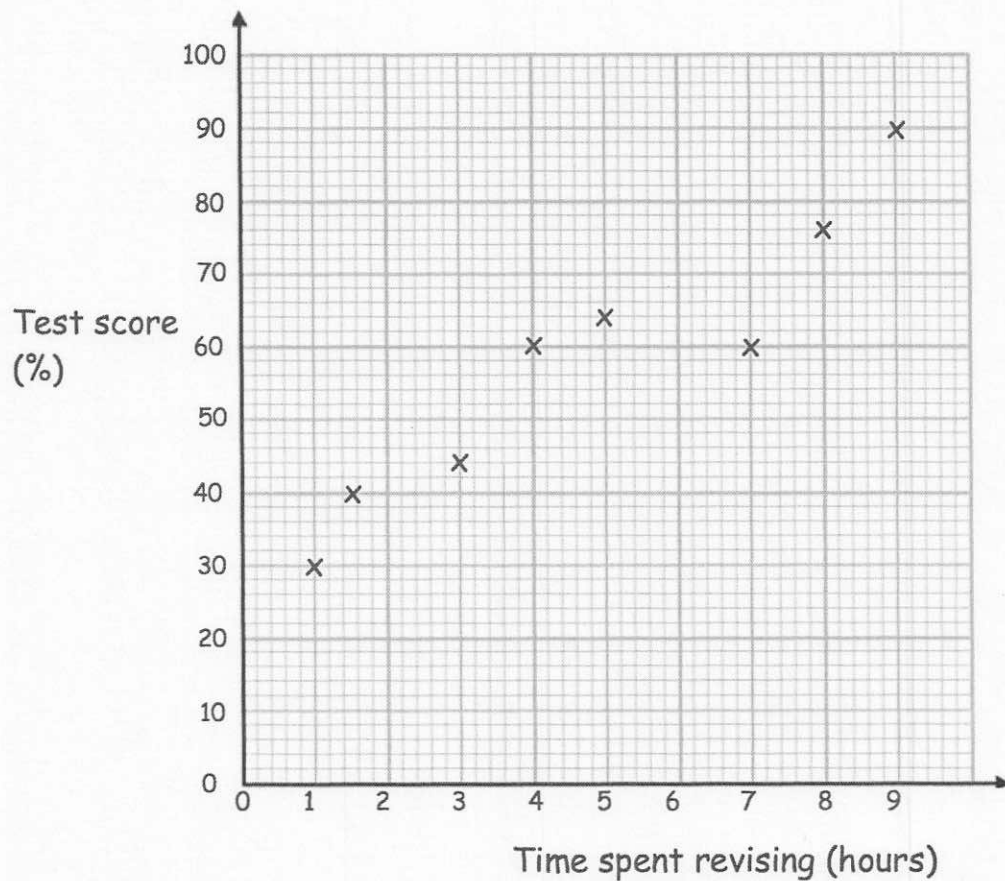
A number is chosen at random from ξ

(b) Find the probability that the number is a member of $B \cup C$

$\frac{7}{9}$

(2)

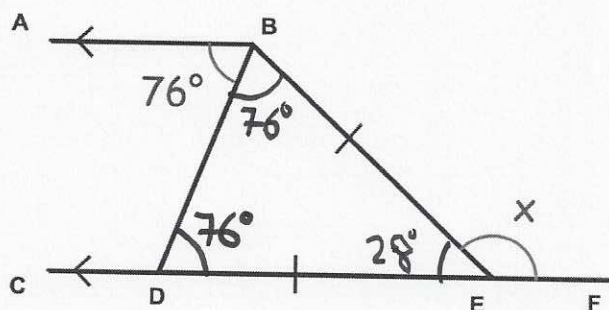
21. The scatter graph below shows information about the number of hours spent revising for a test and the test result for a group of 8 students.



Explain why it might not be sensible to use the scatter graph to estimate the score for a student that spent 15 hours revising.

as none of the data on the graph has a time greater than 9, so you can't make a prediction from 15 hours. (2)

22. BDE is a triangle



AB and CF are parallel lines.

$BE = BD$

Find the size of angle BEF.

Give reasons for your answer.

$$\hat{BDE} = 76^\circ \text{ (alternate angles are equal)}$$

$$\hat{DBE} = \hat{BDE} = 76^\circ \text{ (isosceles triangle has 2 equal angles)}$$

$$\hat{BED} = 180 - 76 - 76 = 28^\circ \text{ (angles in a triangle add up to } 180^\circ)$$

$$x = 180 - 28 = \underline{\underline{152^\circ}} \text{ (angles on a line add up to } 180^\circ)$$

(4)

23. Raheem and Ben invest money in 2019.

Raheem invests £1000 at Banks'R'us, who pay 5% interest per year.

Ben invests £1150 at Bank World, who pay 1% interest per year

(a) In which year will Raheem's investment be worth more than Ben's?

$$\begin{aligned} \text{after 3 years } R: 1000 \times 1.05^3 &= \pounds 1157.63 \\ B: 1150 \times 1.01^3 &= \pounds 1184.85 \end{aligned}$$

$$\begin{aligned} \text{after 4 years } R: \pounds 1215.51 \\ B: \pounds 1196.69 \end{aligned}$$

4 years

(4)

Bank World increase their rate of interest by 1%

(b) Does this affect your answer to part (a)?

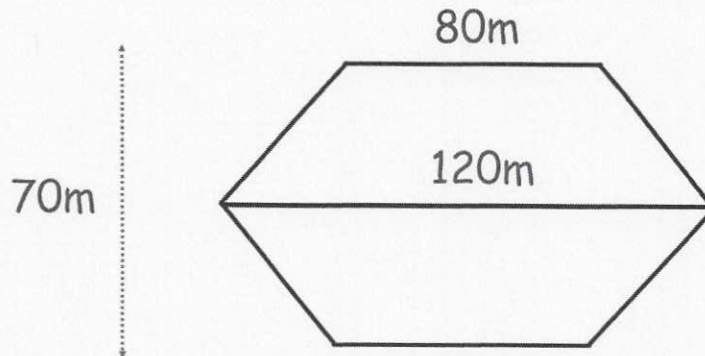
$$\begin{aligned} \text{after 3 years } R: 1000 \times 1.06^3 &= \pounds 1191.02 \\ B: 1150 \times 1.02^3 &= \pounds 1220.39 \end{aligned}$$

$$\begin{aligned} \text{after 4 years } R: \pounds 1262.48 \\ B: \pounds 1244.80 \end{aligned}$$

No - still 4 years

(2)

24. A farm owns two identical fields.
Each field is a trapezium



The farmer is going to plant a crop.

Each 8 kilogram bag of seed costs £19.99
60g of seed covers an area of 1m^2

The farmer has £575 to spend on seed.

Has the farmer got enough money to buy all the seed he needs to cover both fields?

$$\text{area of each field} = \frac{80+120}{2} \times 35 = 3500\text{m}^2$$

$$\text{total area} = 7000\text{m}^2$$

$$\text{require } 7000 \times 60\text{g} = 420,000\text{g} = 420\text{kg of seed}$$

$$\text{require } 420 \div 8 = 52.5 \quad 53 \text{ bags}$$

$$53 \times 19.99 = £1059.47$$

No, he hasn't got enough

(5)

25. The line passing through $(1, p)$ and $(5, 1)$ has a gradient of 5
Find the value of p .

$$\frac{1-p}{5-1} = 5 \quad \therefore 1-p = 20$$

$$p = -19$$

(3)

26. (a) Expand and simplify $(7x - 3)(2x + 1)$

$$14x^2 + 7x - 6x - 3 =$$

$$14x^2 + x - 3$$

(2)

- (b) Factorise $x^2 + 7x + 6$

$$(x+6)(x+1)$$

(2)

27. (a) Write the number 452000000 in standard form

$$4.52 \times 10^8$$

.....

(1)

(b) Write 2.8×10^{-3} as an ordinary number

$$0.0028$$

.....

(1)

(b) Work out $(9.5 \times 10^6)^2$

Give your answer correct to 2 significant figures

$$9.025 \times 10^{13}$$

.....

(2)