

Name: *Answers*

GCSE 9-1 Foundation
Practice Paper
Set D
Paper 1 - Non 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.

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. The marks for questions are shown in brackets
4. You may use tracing paper.

Question	Mark	Available
1		1
2		1
3		2
4		1
5		2
6		3
7		3
8		4
9		3
10		4
11		4
12		2
13		3
14		3
15		4
16		2
17		4
18		2
19		4
20		2
21		7
22		2
23		3
24		4
25		4
26		2
27		1
28		3
Total		80

1. Work out the value of 3^3

$$3 \times 3 \times 3 =$$

27

(1)

2. Write ~~6.38~~612 correct to 2 decimal places

6.39

(1)

3. (a) Simplify $7 \times b \times 3a$

21ab

(1)

- (b) Solve $4x = 5$

$x = \frac{5}{4}$

(1)

4. Write 40% as a decimal

0.4

(1)

5. Work out 70% of 900

$$10\% \text{ is } 90 \\ \times 7 =$$

630

(2)

6. A fair six-sided dice is thrown.

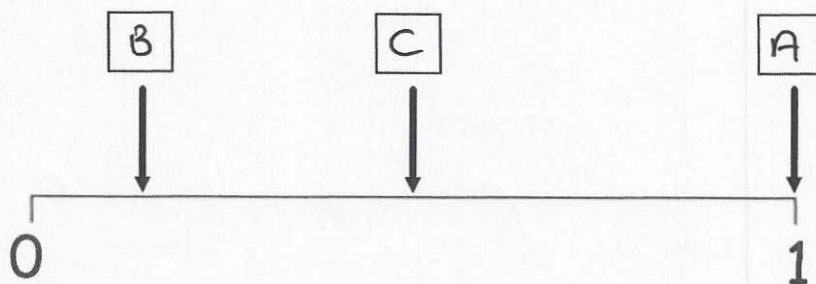


The probabilities of the following events have been marked on the probability scale below.

A: A number less than 7 is thrown.

B: A "6" is thrown.

C: An odd number is thrown.



Place the events A, B and C in the correct boxes.

(3)

7. Dominic buys

A calculator costing £7.50

3 packets of pens costing £1.80 for each packet.

4 rulers.

Dominic pays with a £20 note.

He gets £4.70 change.

Work out the cost of one ruler

$$\begin{array}{r} 3 \times 1.80 = \pounds 5.40 \\ + \pounds 7.50 \\ \hline \pounds 12.90 \end{array}$$

$$\begin{array}{r} \pounds 20 - \pounds 4.70 \\ = \pounds 15.30 \end{array}$$

$$\begin{array}{r} \pounds 15.30 \\ - \pounds 12.90 \\ \hline \pounds 2.40 \text{ on rulers} \end{array}$$

$$\pounds 2.40 \div 4 = \pounds 0.60$$

60p

(3)

8. (a) Work out $\frac{5}{8} - \frac{1}{3}$

$$\frac{15}{24} - \frac{8}{24} =$$

$\frac{7}{24}$

(2)

- (b) Work out $\frac{6}{7} \div \frac{3}{4}$

$$\frac{6}{7} \times \frac{4}{3} = \frac{24}{21} = \frac{8}{7}$$

$\frac{8}{7}$ (or $1\frac{1}{7}$)

(2)

9. In a country, people have to pay tax on their salary as shown.

30% on all earnings over £10,000

David earns £16,000.

Calculate how much tax he pays.

$$16\,000 - 10\,000 = \pounds 6000$$

$$30\% \text{ of } 6000 = 600 \times 3 =$$

£ 1800
(3)

10. At a rugby match, the ratio of children to adults is 2 : 3
There are 120 children in the crowd.
Each adult ticket costs £12
Each child ticket costs three quarters of the price of an adult ticket.

Work out the total money made from ticket sales.

$$\begin{array}{lcl} \text{children} & : & \text{adults} \\ 2 & : & 3 \\ \times 60 & & \times 60 \\ 120 & & 180 \text{ adults} \end{array}$$

$$\text{child ticket } \frac{3}{4} \text{ of } 12 = \pounds 9$$

$$\begin{array}{r} 120 \times 9 = \pounds 1080 \\ 180 \times 12 = \pounds 2160 \\ \hline 3240 \end{array}$$

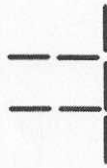
$$\begin{array}{r} 120 \\ \times 9 \\ \hline 1080 \end{array} \quad \begin{array}{r} 180 \times 10 = 1800 \\ 180 \times 2 = 360 + \\ \hline 180 \times 12 = 2160 \end{array}$$

£ 3240
(4)

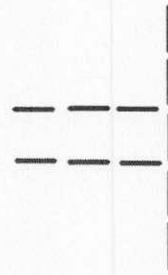
11. These patterns are made from sticks.



Pattern 1
3

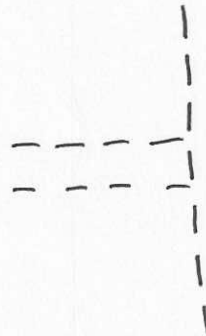


Pattern 2
7



Pattern 3
11

(a) Draw Pattern 4



15

(1)

(b) How many sticks will there be in Pattern 5?

19
.....
(1)

(c) Write down a rule for continuing the patterns.

add 4 each time
.....
.....
(1)

(d) Explain why you **cannot** make a pattern with exactly 44 sticks.

each pattern has an odd number of sticks
and 44 is even
.....
(1)

12. There are 12 red roses, 5 yellow roses and 3 white roses in a vase. Felix takes a rose, at random, from the vase.

Write down the probability that the rose is yellow.

$$12 + 5 + 3 =$$

$$\frac{5}{20}$$

(2)

13. The diagram below is drawn to scale.



- (a) Estimate the height of the man.
Give your answer in metres.

$$2 \text{ m}$$

(1)

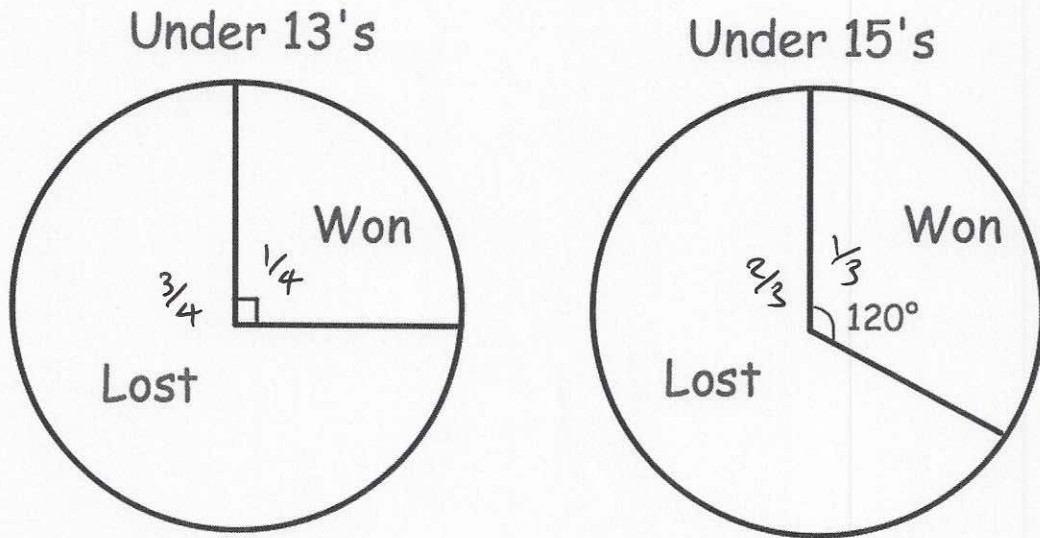
- (b) Estimate the height of the dinosaur.
Give your answer in metres.

$$9 \text{ m}$$

(2)

14. A youth club has two rugby teams, Under 13's and Under 15's.

The pie charts show information about the number of games each team won and lost, last season.



The Under 13's played 28 matches.
The Under 15's played 18 matches.

Which team lost more matches?
Show your workings.

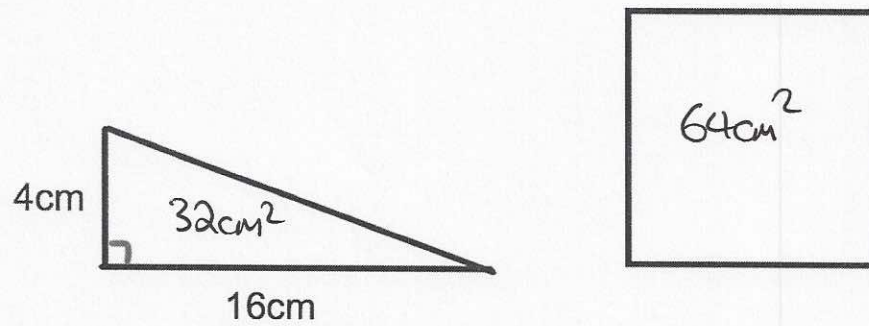
U13 won $28 \div 4 = 7$ lost $7 \times 3 = 21$

U15 won $18 \div 3 = 6$ lost $6 \times 2 = 12$

U13

(3)

15. Below is a diagram of a right-angled triangle and a square.



The area of the square is twice the area of the triangle.

Calculate the length of each side of the square.

$$\text{area of triangle} = \frac{1}{2} \times 4 \times 16 = 32\text{cm}^2$$

$$\text{area of square} = 2 \times 32 = 64\text{cm}^2$$

$$\sqrt{64} =$$

$$\begin{array}{r} 8 \\ \hline \dots\dots\dots\text{cm} \\ (4) \end{array}$$

16. $u = v - at$

$$v = 9 \quad a = -5 \quad t = \frac{1}{4}$$

Work out the value of u .

$$\begin{aligned} u &= 9 - -5 \times \frac{1}{4} \\ &= 9 + \frac{5}{4} = 9 + 1\frac{1}{4} \end{aligned}$$

$$\frac{10\frac{1}{4}}{\dots\dots\dots} \quad (2)$$

17. The cost of buying a coffee and a tea in a cafe is £4.
The cost of buying a coffee and three teas in a cafe is £7.

Work out the cost of buying two coffees and nine teas.

$$2 \text{ teas cost } £7 - £4 = £3$$

$$1 \text{ tea costs } £3 \div 2 = £1.50$$

$$\therefore 1 \text{ coffee costs } £4 - £1.50 = £2.50$$

$$\begin{array}{r} 2 \text{ coffees cost } £5 \\ 9 \text{ teas cost } £13.50 + \\ \hline £18.50 \end{array}$$

$$£18.50 \dots\dots\dots \quad (4)$$

18. A circle has an area of $64\pi \text{ cm}^2$

Work out the diameter of the circle.

$$\text{Area} = \pi r^2$$

$$r^2 = 64$$

$$\text{radius} = 8$$

$$\text{diameter} = 8 \times 2 =$$

$$\text{.....} 16 \text{ cm}$$

(2)

-
19. (a) Solve $5(x + 3) = 31$

$$5x + 15 = 31$$

$$5x = 16$$

$$x = \frac{16}{5} = \frac{32}{10}$$

$$x = \text{.....} 3.2$$

(2)

$$-11 \leq 2x < -4$$

x is an integer

- (b) Write down all the possible values of x

$$-5.5 \leq x < -2$$

$$\text{.....} -5, -4, -3$$

(2)

20. The price of a football season ticket is £1200
Next season the price will increase by 6%

Work out how much the season ticket will cost next season.

$$1\% \text{ of } 1200 = \pounds 12$$

$$6\% \text{ of } 1200 = \pounds 12 \times 6 = \pounds 72$$

£ 1272

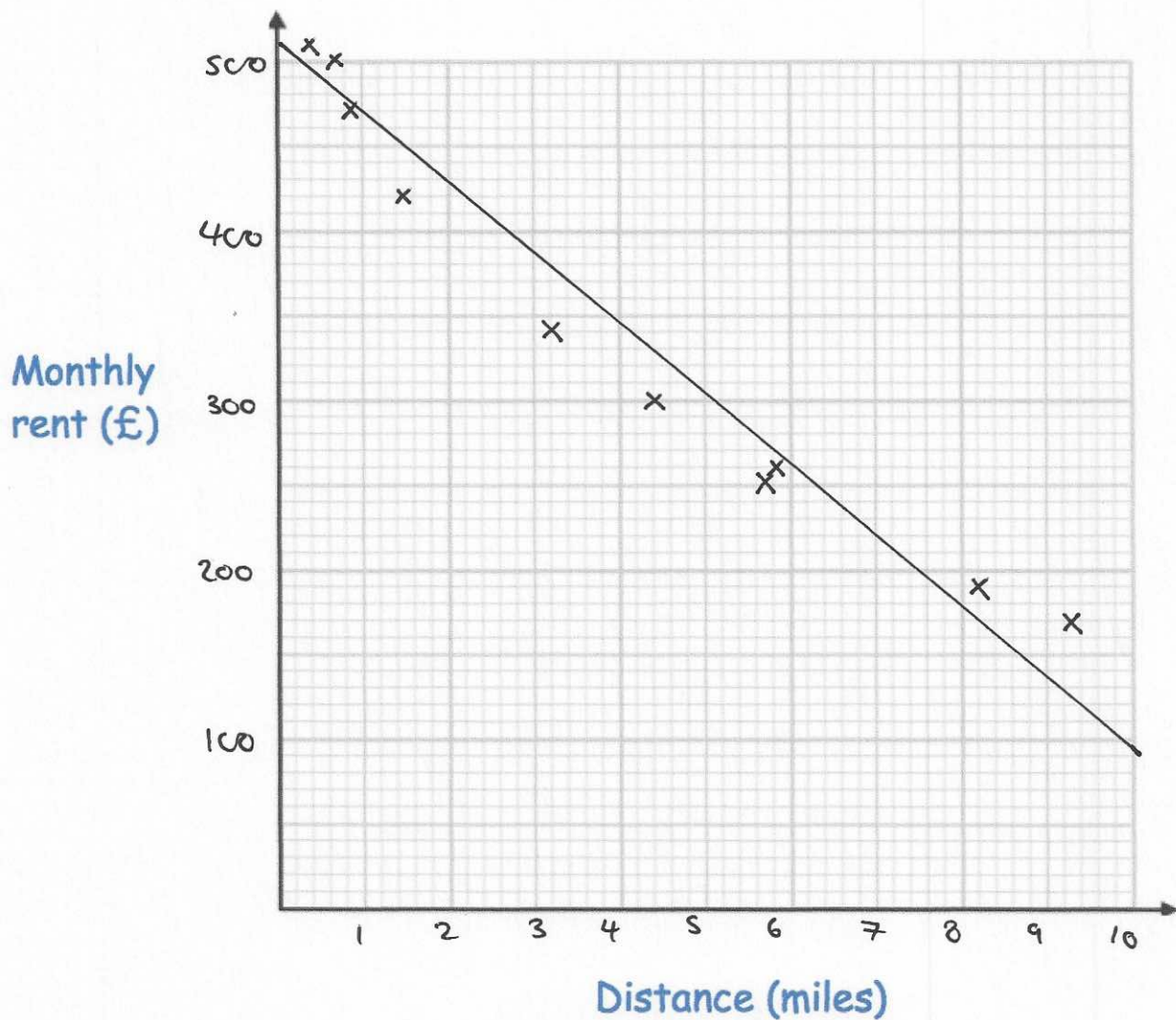
(2)

21. The table below shows information about the monthly rent of an apartment and the distance of the apartment from a city centre, in miles.

Distance (miles)	3.2	1.5	5.7	8.2	0.7	0.9	4.4	5.8	9.3	0.4
Monthly rent (£)	340	420	250	190	500	470	300	260	170	510

- (a) Plot the data on the scatter graph below.
Clearly label your axes.

(3)



- (b) Describe the relationship between the distance from the city centre and the monthly rent.

The further away from the city centre,
the less the rent

(1)

An apartment is 2.2 miles from the city centre.

(c) Find an estimate for the monthly rent

£ 420

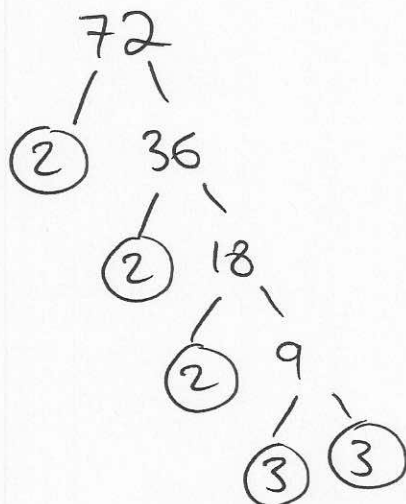
(2)

(d) Explain why it may **not** be appropriate to use your line of best fit to estimate price of rent

It doesn't take into account the size or condition of the flat.

(1)

22. Express 72 as a product of primes.



$2 \times 2 \times 2 \times 3 \times 3$

(2)

23. Work out 63.9×7.2

$$\begin{array}{r|rrr} & 600 & 30 & 9 \\ 70 & 42000 & 2100 & 630 \\ 2 & 1200 & 60 & 18 \end{array}$$

$$\begin{array}{r} 42000 \\ 2100 \\ 1200 \\ 630 \\ 60 \\ 18 \\ \hline 46,008 \end{array}$$

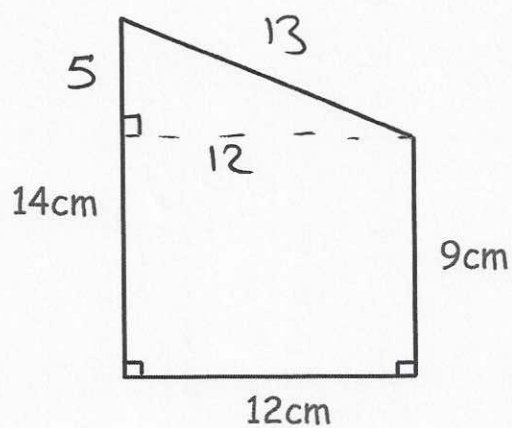
$$\underline{\underline{460.08}} \quad (3)$$

24. Expand and simplify $(x + 3)^2 + (x - 1)^2$

$$\begin{array}{l} (x+3)(x+3) = x^2 + 3x + 3x + 9 \\ (x-1)(x-1) = x^2 - x - x + 1 \\ \hline 2x^2 + 4x + 10 \end{array}$$

$$\underline{\underline{2x^2 + 4x + 10}} \quad (4)$$

25. Shown below is a trapezium



Work out the perimeter of the trapezium.

$$5^2 + 12^2 = 25 + 144$$
$$= 169$$

$$\sqrt{169} = 13$$

$$p = 13 + 9 + 12 + 14 =$$

$$\frac{48 \text{ cm}}{(4)}$$

26. Write down the equation of the line that is parallel to $8x + 2y = 3$ and passes through the point $(0, 5)$

$$2y = -8x + 3$$

$$y = -4x + 1\frac{1}{2}$$

$$\text{gradient} = -4$$

$$y = -4x + C$$

5 is the y intercept

$$y = -4x + 5$$

.....

(2)

-
27. Write down the value of $\sin 30^\circ$

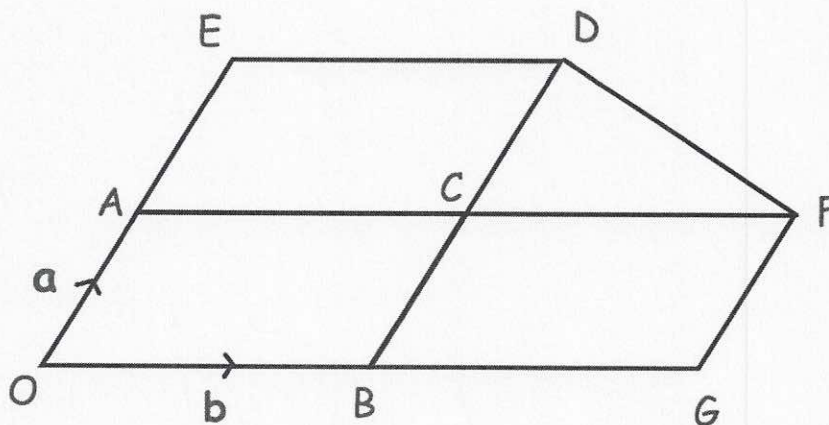
$$\frac{1}{2}$$

.....

(1)

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

$$\overrightarrow{OA} = \mathbf{a} \quad \text{and} \quad \overrightarrow{OB} = \mathbf{b}$$



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

(a) \overrightarrow{OC}

$$\frac{a + b}{(1)}$$

(b) \overrightarrow{BA}

$$\frac{a - b}{(1)}$$

(c) \overrightarrow{DF}

$$\frac{b - a}{(1)}$$