

Name: _____

Exam Style Questions

Percentage of an Amount
Non-Calculator



Corbettmaths

Equipment needed: Pen, Pencil

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 234



Answers and Video Solutions



1. Work out 50% of 46



$$46 \div 2 = 23$$

23

(1)

2. There are 30 students in a class.
10% of the students are left handed.



How many students in the class are left handed?

$$30 \div 10 = 3$$

3

(1)

3. A bag contains 800 sweets.
25% of the sweets are red.



Work out how many red sweets are in the bag.

$$800 \div 4 = 200$$

200

(1)

4. Work out 75% of 300



$$300 \div 4 = 75$$

$$75 \times 3 = 225$$

$$\begin{array}{r} 0.75 \\ \times 3 \\ \hline 225 \end{array}$$

225

(2)

5. Work out 20% of 90



$$90 \div 10 = 9$$

$$10\% \rightarrow 9$$

$$20\% \rightarrow 18$$

$$\underline{18}$$

.....
(2)

6. Work out 80% of 40



$$10\% \rightarrow 4$$

$$40 \div 10 = 4$$

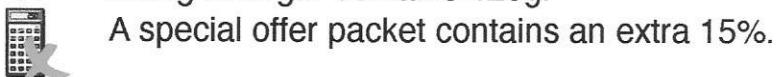
$$4 \times 8 = 32$$

$$80\% \rightarrow 32$$

$$\underline{32}$$

.....
(2)

7. A bag of sugar contains 420g.



A special offer packet contains an extra 15%.

Work out how much extra sugar is in the special offer packet.

$$10\% \rightarrow 42$$

$$5\% \rightarrow 21$$
$$\underline{+}$$
$$63$$

$$\underline{63} \quad \text{g}$$

.....
(2)

8. Freya says "50% of 30 is equal to 30% of 50."



Show Freya is correct.

$$50\% \text{ of } 30$$

$$30 \div 2 = \underline{\underline{15}}$$

$$30\% \text{ of } 50$$

$$\begin{array}{l} 10\% \rightarrow 5 \\ 30\% \rightarrow \underline{\underline{15}} \end{array}$$

$$\begin{array}{l} 50 \div 10 = 5 \\ 5 \times 3 = 15 \end{array}$$

They are both equal to 15.

Freya is correct.

(2)

9. Logan has two tubs of beads.



5% of the 600 beads in Tub A are yellow.

4% of the 900 beads in Tub B are yellow.

Work out the total number of yellow beads in the tubs.

Tub A

$$600 \div 100 = 6$$

$$6 \times 5 = 30 \text{ yellow in tub A}$$

Tub B

$$900 \div 100 = 9$$

$$9 \times 4 = 36 \text{ yellow in tub B}$$

$$30 + 36 = 66$$

66

(4)

10. A new car is priced at £7500
In a sale it is reduced by 20%



Calculate the reduction in price.

$$10\% \rightarrow £750$$
$$20\% \rightarrow £1500$$

$$\begin{array}{r} 1500 \\ - 1500 \\ \hline 0 \end{array}$$

£.....
(2)

11. 1400 students attend a school.



51% of the students travel to school by bus.

Work out how many students travel to school by bus.

$$50\% \rightarrow 700$$
$$1\% \rightarrow 14$$
$$\begin{array}{r} 14 \\ + 14 \\ \hline 714 \end{array}$$

$$\begin{array}{r} 714 \\ - 714 \\ \hline 0 \end{array}$$

.....
(2)

12. Work out 3% of \$600



$$1\% \rightarrow 6$$
$$3\% \rightarrow 18$$

$$\begin{array}{r} 18 \\ - 18 \\ \hline 0 \end{array}$$

.....
(2)

13. Last month, 15% of patients were late for their appointments.



(a) What percentage of patients were **not** late for their appointments?

$$100 - 15 = 85$$

85%

(1)

920 patients had appointments last month.

(b) Work out how many patients were late for their appointments.

$$10\% \rightarrow 92$$

$$5\% \rightarrow 46$$

$$\begin{array}{r} 92 \\ + 46 \\ \hline 138 \end{array}$$

138

(2)

14. Mary wins £400



She gives 50% to her mother £200

Mary gives 20% to her sister. £80

She keeps the rest.

Work out how much each person receives.

$$400 \div 2 = £200$$

$$400 \div 10 = 40$$

$$40 \times 2 = £80$$

$$200 + 80 = 280$$

$$600 - 280 = 120$$

Mother £ 200

Sister £ 80

Mary £ 120

(3)

15. Barry's salary is £28000 and he is due to get an increase of 5%. Calculate how much this increase will be.



$$28000 \div 10 = 2800 \text{ (10%)}$$

$$2800 \div 2 = 1400 \text{ (5%)}$$

£ 1400

(2)

16. Two glasses contain orange juice.

A 400ml glass is 40% full.
A 300ml glass is half full.

Which glass contains less orange juice?

400ml glass

$$400 \div 10 = 40$$

$$40 \times 4 = 160 \text{ ml}$$

$$160 \text{ ml} > 150 \text{ ml}$$

300ml glass

$$300 \div 2 = 150$$

300ml glass

(3)

17. Work out 45% of 540



$$10\% \rightarrow 54$$

$$40\% \rightarrow 216$$

$$5 \rightarrow 27$$

$$216$$

$$\begin{array}{r} + 27 \\ \hline 243 \end{array}$$

243

(2)

18. Increase 360 by 20%



$$\begin{array}{rcl} 10\% & \rightarrow & 36 \\ 20\% & \rightarrow & 72 \\ & & + \frac{172}{432} \end{array}$$

$$360 + 72 = 432$$

.....
432

(2)

19. Decrease 800 by 15%



$$\begin{array}{rcl} 10\% & \rightarrow & 80 \\ 5\% & \rightarrow & 40 \\ & & + \frac{120}{-120} \\ & & \hline & & 680 \end{array}$$

.....
680

(2)

20. The price of a car tyre is £140

The price is reduced by 25%



Calculate the new price of the car tyre.

$$140 \div 4 = 35$$

$$140 - 35 = 105$$

£.....
105
(2)

21. Harry wants to buy a motorbike that costs £1400
He saves 40% of his wages each month.
Each month Harry earns £500



Calculate how many months it will take Harry to save enough money.

$$10\% \rightarrow £50$$

$$40\% \rightarrow £200$$

$$1400 \div 200 = 7$$

.....
7 months
(3)

22. There are 20,000 fans at a football match.
12% of the fans are women.



Work out how many women attended the match.

$$10\% \rightarrow 2000$$

$$1\% \rightarrow 200$$

$$2\% \rightarrow 400$$

$$\begin{array}{r} 2000 \\ + 400 \\ \hline 2400 \end{array}$$

.....
2400
(2)

23. At Frome International train station, 35% of trains were late in a week. In that week there were 440 trains.



Calculate how many trains were on time.

late:

$$\begin{array}{r}
 10\% \rightarrow 44 \\
 30\% \rightarrow 44 \\
 10\% \rightarrow 44 \\
 5\% \xrightarrow{+9.22} 154
 \end{array}$$

on time:

$$\begin{array}{r}
 31 \\
 440 \\
 -154 \\
 \hline
 286
 \end{array}$$

286

(3)

24. Ione makes 240 cupcakes.



A third of the cupcakes are chocolate.

15% of the cupcakes are lemon.

The rest of the cupcakes are vanilla.

Work out the fraction of the cupcakes that are vanilla.

Chocolate	lemon
$240 \div 3 = 80$	$10\% \rightarrow 24$
—	$5\% \rightarrow 12$
	$15\% \rightarrow 36$

Vanilla	124	$\frac{62}{120}$	$\boxed{\frac{31}{60}}$
$80 + 36 = 116$	$\frac{124}{240}$		
$ \begin{array}{r} 31 \\ 240 \\ -116 \\ \hline 124 \end{array} $			

(4)

25. Work out 98% of 700



$$1\% \rightarrow 7$$

$$2\% \rightarrow 14$$

$$700 - 14 = 686$$

$$686$$

(2)

26. Work out 175% of 48



$$25\% \rightarrow 12$$

$$75\% \rightarrow 36$$

$$\begin{array}{r} 48 \\ + 36 \\ \hline 84 \end{array}$$

$$84$$

(2)

27. An annual train ticket from Telford to Birmingham costs £2500

Next year the price of the annual ticket will increase by 3%



Work out the price of the annual ticket from Telford to Birmingham next year.

$$1\% \rightarrow 25$$

$$3\% \rightarrow 75$$

$$2500 + 75$$

$$\begin{array}{r} 2575 \\ \hline \end{array}$$

(2)

28. A company is hosting a charity meal.
800 people work for the company.
It is estimated 70% of the employees will attend.
It is expected that if an employee attends, they will bring a partner.
The cost of attending the meal is £9

Work out how much money should be raised for charity?

$$10\% \rightarrow 80$$

$$70\% \rightarrow 560$$

$$560 \times 2 = 1120$$

$$\begin{array}{r} 1120 \\ \times 9 \\ \hline 10080 \end{array}$$

$$\text{£} \dots 10080 \dots$$

(4)

29. 860000 people live in a city.

 55% of the people who live in the city wear glasses.

Work out the number of people who live in the city that wear glasses.

$$50\% \rightarrow 430000$$

$$10\% \rightarrow 86000$$

$$5\% \rightarrow 43000$$

$$\begin{array}{r} 430000 \\ + 43000 \\ \hline 473000 \end{array}$$

$$\dots 473000 \dots$$

(2)

30. Darren claims if he increases a number by 10% and increases his answer by 10%, that that would be an increase of 20% overall.



Show Darren is incorrect.

$$\text{starting number} = 400$$

$$400 \div 10 = 40$$

$$\text{increase by } 10\% \Rightarrow 440$$

$$\text{increase again by } 10\% \Rightarrow 484 \quad 440 \div 10 = 44$$

This is not an increase of 20% overall.
as a 20% increase would be 480.

(3)

31. Some students sit an exam.
The pass mark is 80%.
There are 40 marks in each test.



Here are the results:

Martin	30 marks	✗
Gina	35 marks	✓
Ricky	31 marks	✗
Vicky	38 marks	✓
Chloe	29 marks	✗

Work out fraction of the students passed the exam.

$$\begin{array}{l} 10\% \rightarrow 4 \\ 80\% \rightarrow 32 \text{ marks (pass mark)} \end{array}$$

$$\frac{2}{5}$$

(4)

32. 128 out of the 140 counters in a box are red.



Elena adds 60 more counters to the box.
81% of the counters in the box are now red.

Work out how many of the 60 counters Elena added to the box were red.

$$140 + 60 = 200$$
$$81\% \text{ of } 200 = 162 \quad \left(\begin{array}{l} \text{as } 1\% \rightarrow 2 \\ 81\% \rightarrow 162 \end{array} \right)$$
$$162 - 128 = 34$$
$$\begin{array}{r} 162 \\ - 128 \\ \hline 34 \end{array}$$

34

(3)

33. 600 students applied for a place on a college course.



35% of the students were invited to an interview.

20% of the students at the interview were given a place on a course.

Work out how many of the 600 students were **not** given a place on the course.

$$10\% \text{ of } 600 = 60$$

$$5\% \text{ of } 600 = 30$$

$$30\% \text{ of } 600 = 180$$

$$35\% \text{ of } 600 = 210$$

$$600 - 42 = 558$$

$$10\% \text{ of } 210 = 21$$

$$20\% \text{ of } 210 = 42$$

558

(3)

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



30% on all earnings over £10,000

David earns £36000

Calculate how much tax he pays.

$$36000 - 10000 = 26000$$

$$10\% \text{ of } 26000 = 2600$$

$$30\% \text{ of } 26000 = 7800$$

$$\begin{array}{r} 2600 \\ \times 3 \\ \hline 7800 \end{array}$$

$$\begin{array}{r} 7800 \\ \hline \text{£} \end{array}$$

(3)

35. A restaurant share the total tips between the waiting staff and the kitchen staff.



The 5 waiting staff equally share 60% of the total tips. £192 each

The 8 kitchen staff equally share the rest of the total tips. £80 each

The total tips one week were £1600

Work out how much more a member of the waiting staff receives than a member of the kitchen staff.

$$10\% \text{ of } 1600 = 160$$

$$50\% \text{ of } 1600 = 800$$

$$60\% \text{ of } 1600 = 960$$

$$192 - 80 = 112$$

$$\begin{array}{r} 192 \\ \times 5 \\ \hline 960 \end{array}$$

$$1600 - 960 = 640$$

$$\begin{array}{r} 640 \\ \times 8 \\ \hline 512 \end{array}$$

$$\begin{array}{r} 112 \\ \hline \text{£} \end{array}$$

(4)

36. Jessica wants to buy 25 candles from Corbett's Candles.



Corbett's Candles
Normally £10.50 each
SALE: 10% off

Work out the cost of buying 25 candles in the sale.

$$\begin{array}{r} 1050 \\ \times 25 \\ \hline 5250 \\ + 21000 \\ \hline 26250 \end{array}$$

£262.50

$$10\% \text{ of } £262.50 = £26.25$$

$$\begin{array}{r} 262.50 \\ - 26.25 \\ \hline 236.25 \end{array}$$

£ 236.25
(4)