

Name: _____

Exam Style Questions

Percentages of Amounts
Increasing/Decreasing by



Corbettmaths

Equipment needed: Pen, Calculator

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

Videos 235, 238



Answers and Video Solutions



1. Work out 60% of 1900



$$1900 \div 100 = 19$$
$$19 \times 60 = 1140$$

$$\text{or } 1900 \times 0.6 = 1140$$

.....
1140
.....
(2)

2. Calculate 7% of 340



$$340 \div 100 = 3.4$$
$$3.4 \times 7 = 23.8$$

$$\text{or } 340 \times 0.07 = 23.8$$

.....
23.8
.....
(2)

3. All the students at a school were asked if they wanted a new school uniform. Here is some information about their responses.



Yes	36%
No	
Unsure	17%

(a) What percentage of students said "No"?

$$36 + 17 = 53$$

$$100 - 53 = 47$$

.....
47.....%
.....
(1)

600 students attend the school.

(b) Work out how many students said "Yes"

$$600 \div 100 = 6$$
$$6 \times 36 = 216$$
$$\text{or } 600 \times 0.36 = 216$$

.....
216
.....
(2)

4. Find 56% of \$8200



$$8200 \div 100 = 82$$
$$82 \times 56 = 4592$$

$$\text{or } 8200 \times 0.56 = 4592$$

\$.....4592
(2)

5. Calculate 83% of 9000



$$9000 \div 100 = 90$$
$$90 \times 83 = 7470$$

$$\text{or } 9000 \times 0.83 = 7470$$

.....7470
(2)

6. A gym has 2500 members.



70% of the gym's members visited the gym last month.

How many members visited the gym last month?

$$2500 \div 100 = 25$$
$$25 \times 70 = 1750$$

$$\text{or } 2500 \times 0.7 = 1750$$

.....1750
(2)

7. Work out 3.5% of 140g



$$140 \div 100 = 1.4$$
$$1.4 \times 3.5 = 4.9\text{g}$$

$$\text{or } 140 \times 0.035 = 4.9$$

.....4.9g
(2)

8. Find 18.2% of £25000



$$25000 \div 100 = 250$$

$$250 \times 18.2 = 4550$$

$$\text{or } 25000 \times 0.182 = 4550$$

£ 4550

(2)

9. Madigan is paid £3500 each month.



She saves 7% of each month's pay.

How much money will Madigan save over one year?

$$3500 \div 100 = 35$$

$$35 \times 7 = 245$$

$$\text{or } 3500 \times 0.07 = 245$$

$$245 \times 12 = 2940$$

$$245 \times 12 = 2940$$

£ 2940

(3)

10. Work out 271% of 9100



$$9100 \div 100 = 91$$

$$91 \times 271 = 24661$$

$$\text{or } 9100 \times 2.71 = 24661$$

24661

(2)

11. Increase £2400 by 9%



$$2400 \div 100 = 24$$

$$24 \times 9 = 216$$

$$2400 + 216 = 2616$$

$$\text{or } 2400 \times 1.09 = 2616$$

£ 2616

(2)

12. Increase 40 miles by 43%



$$40 \div 100 = 0.4$$

$$0.4 \times 43 = 17.2$$

$$40 + 17.2 = 57.2$$

or

$$40 \times 1.43 = 57.2$$

.....57.2.....miles
(2)

13. Decrease 18000 by 6%



$$18000 \div 100 = 180$$

$$180 \times 6 = 1080$$

$$18000 - 1080 = 16920$$

or

$$18000 \times 0.94 = 16920$$

.....16920.....
(2)

14. Decrease 712kg by 24%



$$712 \div 100 = 7.12$$

$$7.12 \times 24 = 170.88$$

$$712 - 170.88 = 541.12 \text{ kg}$$

or

$$712 \times 0.76 = 541.12 \text{ kg}$$

.....541.12.....kg
(2)

15. Increase 7900 by 37.4%



$$7900 \div 100 = 79$$

$$79 \times 37.4 = 2954.6$$

$$7900 + 2954.6 = 10854.6$$

or

$$7900 \times 1.374 = 10854.6$$

.....10854.6.....
(2)

16. Oliver's salary is £18,000 and he is due to get an increase of 4%.
How much will this increase be?



$$18000 \div 100 = 180$$

$$180 \times 4 = 720$$

or

$$18000 \times 0.04 = 720$$

£ 720
.....
(2)

17. A new TV is priced at £320
In a sale it is reduced by 45%



Calculate the sale price

$$320 \div 100 = 3.2$$

$$3.2 \times 45 = 144$$

$$320 - 144 = 176$$

or

$$320 \times 0.55 = 176.00$$

£ 176
.....
(3)

18. The price of a sofa was £1799
In a sale, the price is reduced by 46%



How much does the sofa now cost?

$$1799 \div 100 = 17.99$$

$$17.99 \times 46 = 827.54$$

$$1799 - 827.54 = 971.46$$

$$\text{or } 1799 \times 0.54 = 971.46$$

£ 971.46
.....
(3)

19. Joanne sees this special offer in a shop.



Special Offer	
Microwave	£189
Toaster	£25
Buy both items and receive a 4% discount	

Joanne buys both items.

How much does she pay?

$$\begin{aligned} 189 + 25 &= 214 & \text{or} & 189 + 25 = 214 \\ 214 \div 100 &= 2.14 & & 214 \times 0.96 = 205.44 \\ 2.14 \times 4 &= 8.56 & & \\ 214 - 8.56 &= 205.44 & & \end{aligned}$$

£ 205.44
.....
(3)

20. Barry earns £1300 a month.
He spends 30% of this money on rent and 12% on bills.



How much of the £1300 has he left?

$$\begin{aligned} 1300 \div 100 &= 13 & \text{or} & 30 + 12 = 42 \\ 13 \times 30 &= 390 \text{ (rent)} & & 1300 \times 0.42 = 546 \text{ (rent + bills)} \\ 13 \times 12 &= 156 \text{ (bills)} & & 1300 - 546 = 754 \\ 390 + 156 &= 546 & & \\ 1300 - 546 &= 754 & & \end{aligned}$$

£ 754
.....
(3)

21. A carton of orange juice contains 540ml.
A special offer carton contains an extra 35%.



How many millilitres of orange juice are in the special offer carton?

$$\begin{aligned} 540 \div 100 &= 5.4 & \text{or} & \quad 540 \times 1.35 = 729 \text{ ml} \\ 5.4 \times 35 &= 189 \\ 540 + 189 &= 729 \text{ ml} \end{aligned}$$

729

.....ml
(3)

22. There are 52800 fans at a football match between Rovers and City.
37% of the fans support Rovers and the rest support City.



How many fans at the match support City?

$$\begin{aligned} 52800 \div 100 &= 528 & \text{or} & \quad 52800 \times 0.37 = 19536 \\ 528 \times 37 &= 19536 & & \quad 52800 - 19536 = 33264 \\ 52800 - 19536 &= 33264 \end{aligned}$$

.....33264.....
(3)

23. In 2014 the population of a country was 4580000
By 2024, the population had increased by 18%



Work out the population in 2024

$$\begin{aligned} 4580000 \div 100 &= 45800 & \text{or} & \quad 4580000 \times 1.18 \\ 45800 \times 18 &= 824400 & & \quad = 5404400 \\ 4580000 + 824400 &= 5404400 \end{aligned}$$

.....5404400.....
(3)

24.



A vintage car was bought for £9400

Since then the value of the car has increased by 29%

Calculate the value of the car.

$$9400 \div 100 = 94$$

$$94 \times 29 = 2726$$

$$9400 + 2726 = 12126$$

or

$$9400 \times 1.29 = 12126$$

£ 12126

(3)

25.



James is buying a table.

He finds the same table for sale in two different shops.

Table World

£140

Prices include VAT

Tables'R'us

£120

Prices do not include VAT

When buying the table, the rate of VAT was 20%

Which shop is better value?

You must show your working.

Table World

£140

Tables'R'Us

$$120 \div 100 = 1.2$$

$$1.2 \times 20 = 24$$

$$120 + 24 = 144$$

£144

or

$$120 \times 1.2 = 144$$

Table World

(3)

26.  Harriet travelled from Bath to Cardiff.
Her average speed was 58 miles per hour.

There is traffic on the return journey.
Her average speed is reduced by 23%

Work out the average speed on the return journey.

$$58 \div 100 = 0.58$$

$$0.58 \times 23 = 13.34$$

$$58 - 13.34 = 44.66$$

$$\text{or } 58 \times 0.77 = 44.66$$

.....44.66.....mph
(3)

27.  Jessica buys a car that normally costs £18750

She received a 8% discount and will pay in 60 equal monthly instalments.

How much is each monthly instalments?

$$18750 \div 100 = 187.5$$

$$187.5 \times 8 = 1500$$

$$18750 - 1500 = 17250$$

$$17250 \div 60 = \pounds 287.50$$

$$\text{or } 18750 \times 0.92 = 17250$$

$$17250 \div 60 = \pounds 287.50$$

£.....287.50.....
(3)

28. The value of a house in 2022 was £340000



The value of the house in 2023 had increased by 15%
In 2024, the value increased by a further 9%

Work out the increase in value from 2022 to 2024.

$$340000 \div 100 = 3400$$

$$3400 \times 15 = 51000$$

$$340000 + 51000 = 391000$$

$$391000 \div 100 = 3910$$

$$3910 \times 9 = 35190$$

$$391000 + 35190 = 426190$$

$$426190 - 340000 = \text{£}81690$$

or

$$340000 \times 1.15 = 391000$$

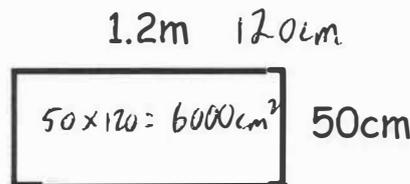
$$391000 \times 1.09 = 426190$$

$$426190 - 340000 = 81690$$

£81690

(4)

29. The rectangle below has a length of 1.2m and a width of 50cm.



The length and width are both increased by 35%

Zander says that the area will increase by 35%

Jayden says that the area will increase by 70%

Lukas says that the area will increase by 82.25%

Who is correct?

You must show workings.

$$120 \div 100 = 1.2$$

$$1.2 \times 35 = 42$$

$$120 + 42 = 162\text{cm}$$

$$50 \div 100 = 0.5$$

$$0.5 \times 35 = 17.5$$

$$50 + 17.5 = 67.5$$

$$162 \times 67.5 = 10935\text{cm}^2$$

$$6000 \div 100 = 60$$

$$60 \times 182.25 = 10935$$

82.25% increase

Lukas

(4)

or

$$120 \times 1.35 = 162$$

$$50 \times 1.35 = 67.5$$

$$162 \times 67.5 = 10935$$

$$10935 \div 6000 = 1.8225$$

82.25% increase

30. Georgina needs to buy petrol for her car.



Her car can hold 70 litres of petrol.

$$70 - 20 = 50$$

There are already 20 litres of petrol in the tank.

Georgina is going to fill up the petrol tank. 50 litres added

The price of petrol is 145.9p per litre

Georgina has a voucher that gives her 3% off the price of petrol.

How much does Georgina have to pay for the petrol?

$$50 \times 145.9 = \pounds 72.95$$

$$72.95 \div 100 = 0.7295$$

$$0.7295 \times 3 = \pounds 2.1885$$

$$72.95 - 2.1885 = \pounds 70.7615$$

accept either $\pounds 70.76$ or $\pounds 70.77$

or

$$50 \times 145.9 = \pounds 72.95$$

$$72.95 \times 0.97 = \pounds 70.7615$$

accept either $\pounds 70.76$ or $\pounds 70.77$.

£ 70.76
.....
(5)

or

£ 70.77

31. The table gives information about the number of people voting for each party at an election.



Party	Number of Votes
Gold Party	12598
Pink Party	9112
Brown Party	20059
Purple Party	4466

There are 52852 people who can vote
The target was that 88% of people would vote.

Was the target met?

$$52852 \div 100 = 528.52$$

$$528.52 \times 88 = 46509.76 \text{ (target)}$$

$$12598 + 9112 + 20059 + 4466 = 46235$$

$$46235 < 46509.76$$

No, the target was not met.

(3)

32.  A hotel has two types of guest: business guests and leisure guests. Last month, 5000 guests stayed at the hotel. 68% were business guests and the rest were leisure guests.

144 leisure guests had dinner at the hotel.

77% of the business guests had dinner at the hotel.

How many guests did **not** have dinner at the hotel?

$$5000 \div 100 = 50$$

$$50 \times 68 = 3400 \text{ business guests}$$

$$1600 \text{ leisure guests}$$

77% of 3400

$$3400 \div 100 = 34$$

$$34 \times 77 = 2618 \text{ business guests had dinner.}$$

$$2618 + 144 = 2762$$

$$5000 - 2762 = 2238$$

2238

.....
(4)

33. Aidan sits an exam with three sections.



Section 1 is worth 40 marks and he scored 80%

Section 2 is worth 80 marks and he scored 76.25%

Section 3 is worth 180 marks.

To pass the exam, students need to score at least 75% of the total marks.

Work out the minimum number of marks Aidan needs in Section 3 to pass.
You must show all your workings.

$$40 + 80 + 180 = 300$$

$$300 \div 100 = 3$$

$$3 \times 75 = 225 \text{ marks needed.}$$

section 1

$$40 \div 100 = 0.4$$

$$0.4 \times 80 = 32$$

section 2

$$80 \div 100 = 0.8$$

$$0.8 \times 76.25 = 61$$

$$32 + 61 = 93$$

$$225 - 93 = 132$$

132

.....
(5)

34.  A ball is dropped from a height of 3m and is allowed to bounce repeatedly. Each time it rises to a height which is 80% of the height it fell from.

What height does the ball rise to after the second bounce.

$$300 \div 100 = 3$$

$$3 \times 80 = 240 \text{ cm}$$

or

$$300 \times 0.8 = 240$$

$$240 \times 0.8 = 192$$

$$240 \div 100 = 2.4$$

$$2.4 \times 80 = 192 \text{ cm}$$

..... 1.92 m
(3)

35. James bought a house.

 In the first year the value of the house decreased by 10%.
In the second year the value of the house increased by 10%.

Is the house worth more, less, or the same as what James paid for it?
Explain your answer.

e.g. if a house cost £100000

1st year : £90000

2nd year : £99000

or

$$\begin{aligned} & \text{£}x \\ \text{1st year} &= 0.9x \\ \text{2nd year} &= 0.9x \times 1.1 \\ &= 0.99x \end{aligned}$$

less by 1%
(3)

36. Cerys wants to invest £4000 for two years.



Banks'R'us
Compound Interest
6% for the first year
1.5% for each extra year

The Best Bank
Compound Interest
5% for the first year
2.5% for each extra year

Southern Bank
Compound Interest
7% for the first year
0.5% for each extra year

At the end of two years, Cerys wants to have as much money as possible.

Which bank should she invest her £4000 in?

Banks 'R' us 1st year = £4200
 2nd year = £4303.60

The Best Bank 1st year = £4200
 2nd year = £4305 ✓

Southern Bank 1st year = £4280
 2nd year = £4301.40

The Best Bank

.....
(4)

37. A company makes Christmas cards and birthday cards in the ratio 9 : 11



26% of the birthday cards they made included a badge.

The company made a total of 746000 cards.

Work out how many of the cards were birthday cards without a badge.

$$9 + 11 = 20$$

$$746000 \div 20 = 37300$$

$$37300 \times 9 = 335700 \text{ - Christmas}$$

$$37300 \times 11 = 410300 \text{ - birthday}$$

$$410300 \times 0.26 = 106678$$

$$410300 - 106678 = 303622$$

303622

.....
(4)

38. A bag contains $9x$ green counters and $2x$ pink counters.



The number of green counters is decreased by 40%

The number of pink counters is increased by 10%

There are now 96 more green counter than pink counters in the bag.

Work out the value of x

$$9x \times 0.6 = \cancel{5.4x} \quad 5.4x$$

$$2x \times 1.1 = 2.2x$$

$$5.4x - 2.2x = 3.2x$$

$$3.2x = 96$$

$$x = 30$$

30

.....
(4)