PERCENTAGES

100% | £40

$\frac{1}{2}$ **50%**   100% ÷ 2

$\frac{1}{4}$ **25%**   100% ÷ 4

$\frac{1}{10}$ **10%**   100% ÷ 10

What is
50% of £40
25% of £40
75% of £40
10% of £40
30% of £40
70% 0f £40

100% | £20

$\frac{1}{2}$ **50%**   100% ÷ 2

$\frac{1}{4}$ **25%**   100% ÷ 4

$\frac{1}{10}$ **10%**   100% ÷ 10
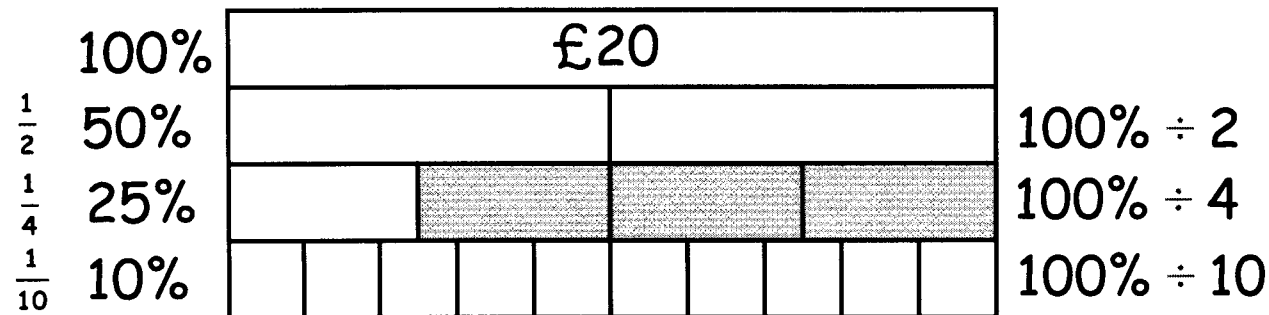
What is
50% of £20
25% of £20
75% of £20
10% of £20
20% of £20
80% 0f £20

100% | £60

$\frac{1}{2}$ **50%**   100% ÷ 2

$\frac{1}{4}$ **25%**   100% ÷ 4

$\frac{1}{10}$ **10%**   100% ÷ 10
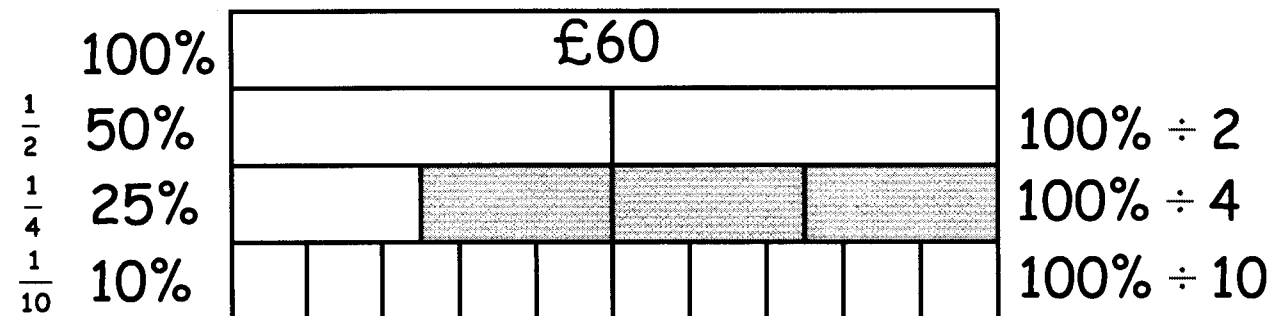
What is
50% of £60
25% of £60
75% of £60
10% of £60
40% of £60
90% 0f £60
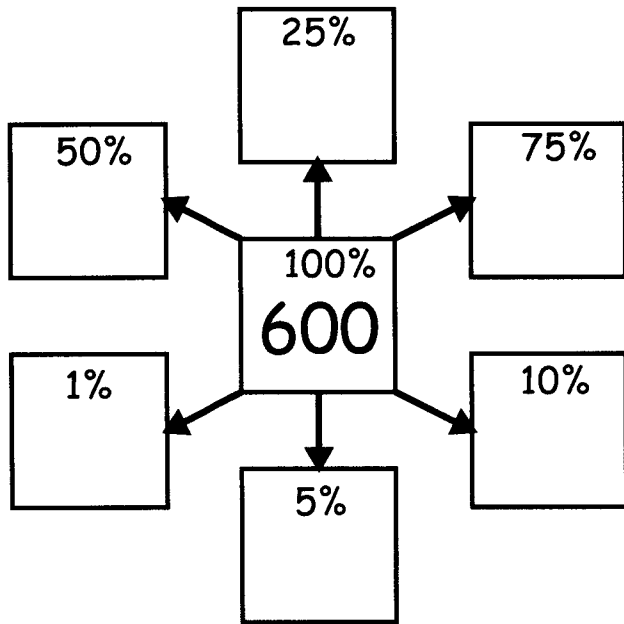
①

Diagram 1

	25%	
50%	**100%** **600**	75%
1%		10%
	5%	

Diagram 2

	25%	
50%	**100%** **400**	75%
1%		10%
	5%	

Diagram 3

	25%	
50%	**100%** **80**	75%
1%		10%
	5%	

23% of 600   11% of 400   6% of 80

61% of 600   52% of 400   32% of 80

8% of 600   90% of 400   74% of 80

80

0% —
10% —
20% —
30% —
40% —
50% —
60% —
70% —
80% —
90% —
100% —

200

0% —
25% —
50% —
75% —
100% —

60

0% —
5% —
10% —
25% —
50% —
60% —
75% —
90% —
100% —

20

0% —
10% —
20% —
30% —
40% —
50% —
60% —
70% —
80% —
90% —
100% —

400

0% —
25% —
50% —
75% —
100% —

③

```
                                                  50%
           half        50%      half       25%    + 25%      75%

  100%

           ÷ 10        10%      half        5%                 1%


                                             ÷ 10
```
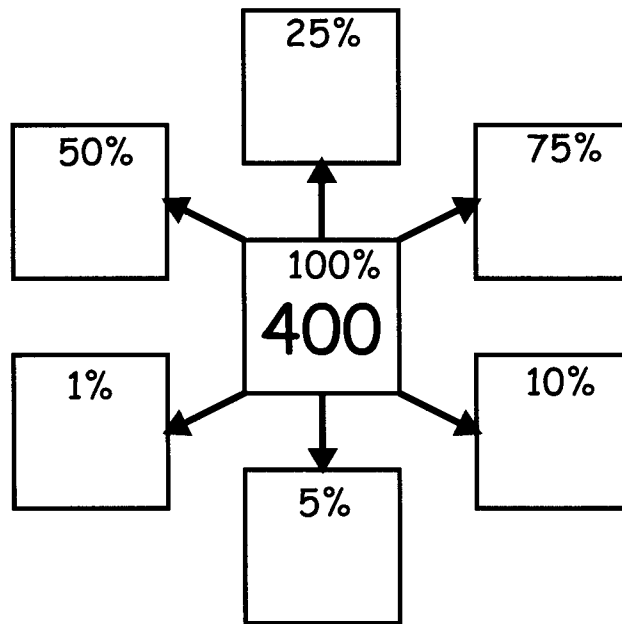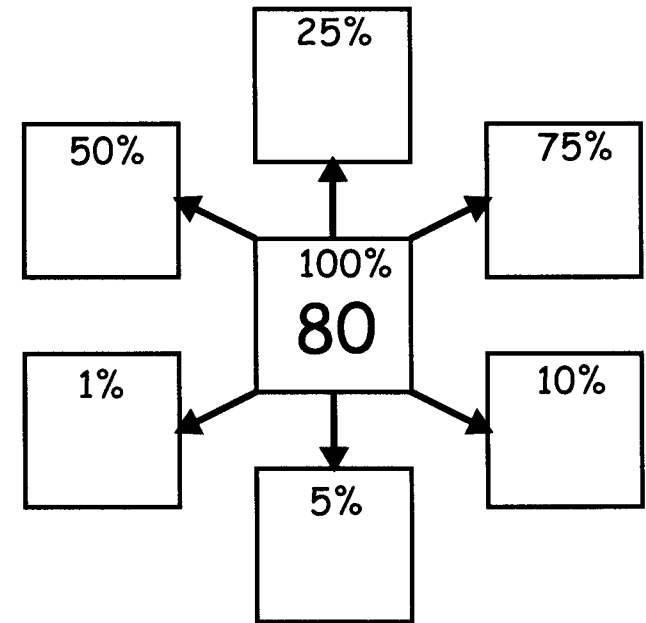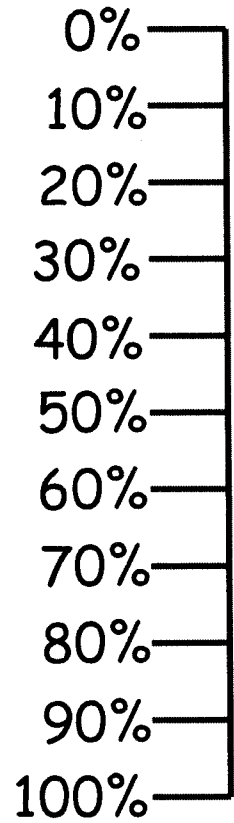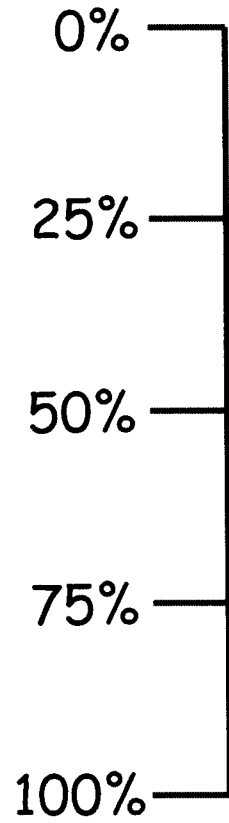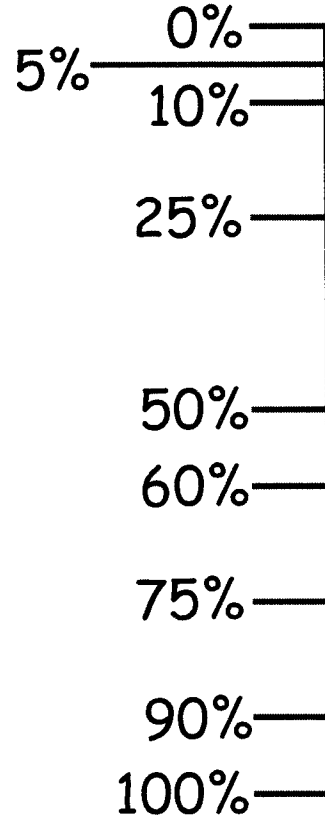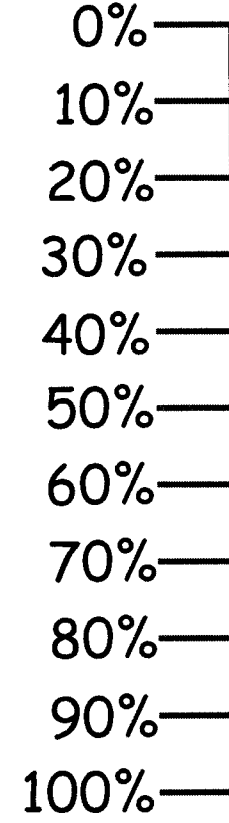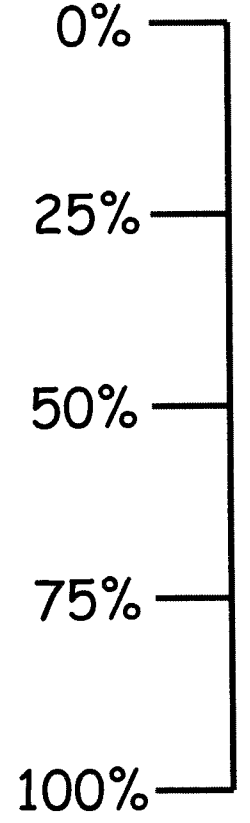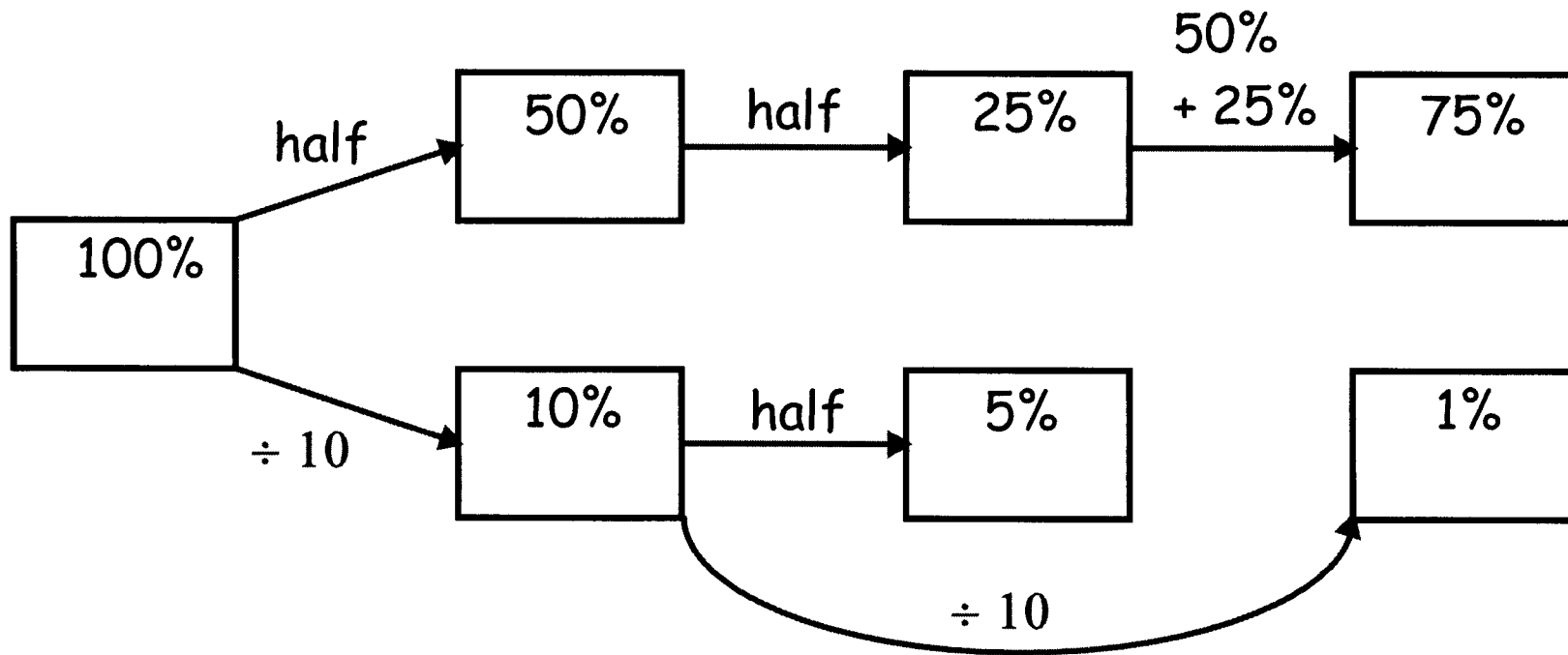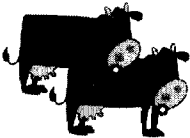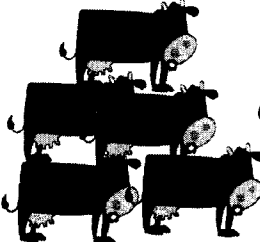
1   Find 17% of 300.

2   Find 63% of 300.

3   What percentage of 300 is 93?

4   What percentage of 300 is 201?

④

	Fraction	Decimal	Percentage
Bears			
Ducks			
Cows			

	Fraction	Decimal	Percentage
Bears			
Ducks			
Cows			

	Fraction	Decimal	Percentage
Bears			
Ducks			
Cows			

	Fraction	Decimal	Percentage
Bears			
Ducks			
Cows			

5

Fractions, decimals and percentages

Percentage	Decimal	Fraction (cancel if possible)
28%		

Drawing

Percentage	Decimal	Fraction (cancel if possible)
	0.35	

Drawing

Percentage	Decimal	Fraction
		$\frac{5}{8}$

Drawing

Percentage	Decimal	Fraction

Drawing

Percentage	Decimal	Fraction (cancel if possible)
		$\frac{7}{8}$

Drawing

8 times table	1	2	3	4	5	6	7	8	9	10
	8	16	24	32	40	48	56	64	72	80

⑥

Percentage Increase

1 Increase 120 by 14%

	percentage	decimal
100% + 14% =	114% =	1.14

In one calculation the answer is 120 x 1.14 = 136.8

2 Increase 230 by 26%

	percentage	decimal
100% + 26% =	=	

In one calculation the answer is

3 Increase 84 by 56%

	percentage	decimal
100% + 56% =	=	

In one calculation the answer is

4 Increase 620 by 8%

	percentage	decimal
100% + 8% =	=	

In one calculation the answer is

5 Increase 650 by 68%

	percentage	decimal
100% + 68% =	=	

In one calculation the answer is

6 Increase 240 by 12%

In one calculation the answer is

7 Increase 480 by 6%

In one calculation the answer is

8 Increase 90 by 15%

In one calculation the answer is

9 Increase 560 by 32%

In one calculation the answer is

10 Increase 600 by 48%

In one calculation the answer is

Percentage Decrease

1 Decrease 120 by 14%

	percentage	decimal
100% - 14% =	86% =	0.86

In one calculation the answer is 0.86 x 120 = 103.2

2 Decrease 230 by 26%

	percentage	decimal
100% - 26% =		=

In one calculation the answer is

3 Decrease 84 by 56%

	percentage	decimal
100% - 56% =		=

In one calculation the answer is

4 Decrease 620 by 8%

	percentage	decimal
100% - 8% =		=

In one calculation the answer is

5 Decrease 650 by 68%

	percentage	decimal
100% - 68% =		=

In one calculation the answer is

6 Decrease 240 by 12%

In one calculation the answer is

7 Decrease 480 by 6%

In one calculation the answer is

8 Decrease 90 by 15%

In one calculation the answer is

**9** Decrease 560 by 32%

In one calculation the answer is

10 Decrease 600 by 48%

In one calculation the answer is

Percentages

1) What is 50% of £30?

2) What is 25% of £40?

3) What is 75% of £20?

4) What is 10% of £80?

5) Sally took a test and scored 50%. The test was out of 20. How many marks did she get?

6) Brian took the test also and scored 25%. The test was out of 20. How many marks did he get?

7) Tariq took the test also and scored 75%. The test was out of 20. How many marks did he get?

8) The autumn term contains 80 school days. Amy was absent for 10% of the days. How many days was she absent for?

9) The price of a coat is £60. In a sale the price is reduced by 25%. What is the sale price of the coat?

10) The pirce of a TV is £200. The price is to go up by 50%. What is the new price?

What percentage of these shapes are
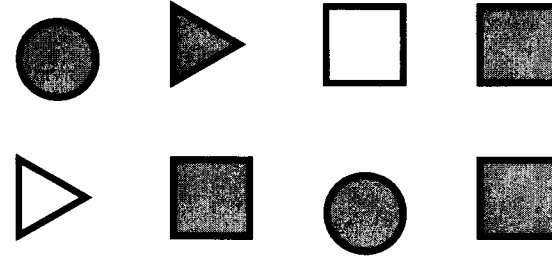
11) Squares?

12) Circles?

13) Shaded?

14) Not shaded?

15) Rectangles?

16) What percentage of the circles are shaded?

Chloe has 12 coins in her purse.

17) 25% of them are 1p coins. How many 1p coins?

18) 50% of them are 10p coins. How many 10p coins?

19) The rest are £1 coins. How many £1 coins?

20) How much money does she have in her purse?

9

16 Numbers 15 clues. Which number is left?

261	327	312	372
380	35	360	36
132	20	57.8	324
38	45	40	85

15% of 240

17% of 340

50% of 170

Increase 260 by 20%

Decrease 165 by 20%

12 out of 60 is what %

30% of 1200
~~3% of 1200~~

Decrease 300 by ~~17%~~ *13%*

Increase 240 by 35%

36 out of 80 is what %

Decrease 600 by 38%

Increase 300 by 9%

Decrease 400 by 5%

Increase 20 by 90%

14 out of 40 is what %

What percentage is shaded?
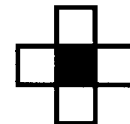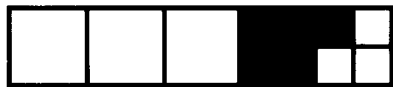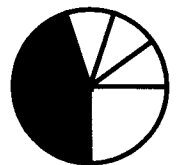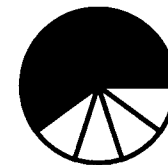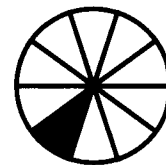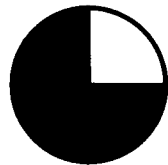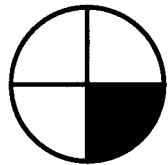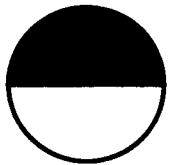
£2000 is invested in a savings account. At the end of each year it earns 5% interest on the end of year total. How much money is in the account at the of 4 years?

End of Year	Balance	5%	New Balance
1	2000	100	2100
2	2100	105	2205
3	2205	110.25	2315.25
4	2315.25	115.76	2431.01

Quicker Method
$2000 \times 1.05^4 = 2431.01$

A car costs £15000 new. Each year it loses 15% of its value. What is the car worth at the end of 5 years?

End of Year	Balance	15%	New Balance
1	15000	2250	12750
2	12750		
3			
4			
5			

Quicker Method

£2000 is invested in a savings account. At the end of each year it earns 5% interest on the
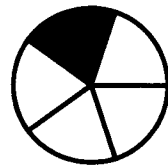
End of Year	Balance	5%	New Balance
1	2000	100	2100
2	2100		
3			
4			

Quicker Method

A car costs £15000 new. Each year it loses 15% of its value. What is the car worth at the

End of Year	Balance	15%	New Balance
1	15000	2250	12750
2	12750		
3			
4			
5			

Quicker Method

Reverse Percentages

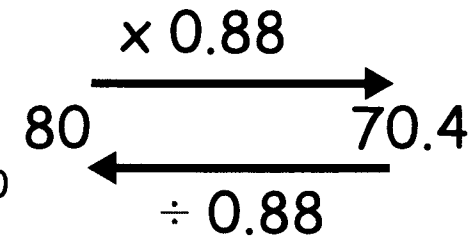Find the original amount (the 100%) given the changed amount

A coat costs £80. Its price goes up by 5%. What is the new price? 80 x 1.05 = £84
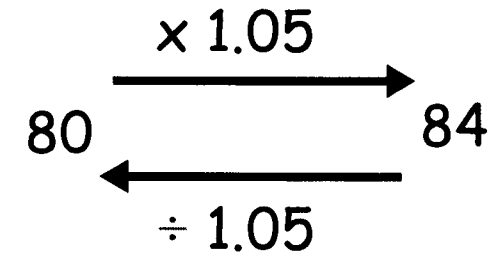
After a 5% increase the price of a coat is £84. What was its original price? 84 ÷ 1.05 = £80

$$\overset{\textstyle \times\ 1.05}{\underset{\textstyle \div\ 1.05}{80 \rightleftarrows 84}}$$

A coat costs £80. Its price goes down by 12%. What is the new price? 80 x 0.88 = £70.40

After a 12% decrease the price of a coat is £70.40. What was its original price? 70.40 ÷ 0.88 = £80

$$\overset{\textstyle \times\ 0.88}{\underset{\textstyle \div\ 0.88}{80 \rightleftarrows 70.4}}$$

1) A bag is in the sale with 15% off. It costs £51. What was its original price?

2) The price of a TV has gone up by 8%. The new price is £324. What was its original price?

3) A phone is in the sale with 5% off. It costs £285. What was its original price?

4) The price of a games console has gone up by 12%. The new price is £380.80. What was its original price?

(12)

Percentages

A)	Find a percentage of a quantity. Find 23% of £64.	B)	Increase by a percentage. Increase £84 by 7%.
C)	Decrease by a percentage. Decrease £300 by 12.5%.	D)	Express one quantity as a percentage of another. Peter scored 7 out of 16 in a test. What is his %?
E)	20% off in a sale. TV now costs £304. What was its original price?	F)	Prices go up by 12%. New price is £313.60. What was the original price?

1) In Year 7 there are 160 students. In a test 48 of the students got level 4. What percentage of the students got level 4?

2) Find 6% of 4500kg.

3) In a sale a shop took 12% off their prices. Calculate the sale price of a television that usually costs £400.

4) A special bag of crisps contains 15% extra free. The bag usually holds 300g. How much does the special bag hold?

5) Hilary bought a coat in the sale. With 20% off it cost £92.80. What was its price before the discount?

6) In a class there are 12 girls and 13 boys. What percentage of the class are girls?

7)

	Red	Blue
Ford	4	6
Vauxhall	6	14

The results show the number of cars in a car park.

a) What percentage of Fords are blue?

b) What percentage of blue cars are Fords?

c) What percentage of cars in the car park are blue Fords?

8) A bottle of cola contains 15% extra free. The bottle contains 345ml. How much does a bottle normally hold?

Qu. 1 Set 2	Qu. 2 Set 2	Qu. 3 Set 2	Qu. 4 Set 2	Qu. 5 Set 2
17% of 96	7% as a decimal	11 out of 20 as a %	Increase 82 by 7%	Decrease 280 by 13%
Qu. 6 Set 2	Qu. 7 Set 2	Qu. 8 Set 2	Qu. 9 Set 2	Qu. 10 Set 2
Sale 16% off. Now £75.60. Originally?	TV now £300. Was £360. What % off?	Increase 440 by 23%	In a class there are 16 boys and 9 girls. What % of the class are girls?	£3000 invested at 4% per year for 7 years. How much is it worth at the end of 7 years?
Qu. 11 Set 2	Qu. 12 Set 2	Qu. 13 Set 2	Qu. 14 Set 2	Qu. 15 Set 2
Prices up by 8%. Now £356.40. Was?	Harry gives 10% of his wages to charity. Clare gives 30%. Who gives the most?	A car costs £8000. It depriciates by 11% each year. What is it worth after 5 years?	In a group of 700 people, 37% are under the age of 20. How many people are 20 or over?	TV now £529. Was £460. What % increase?

⑭