Percentages.

A). Finding a Percentage of a Quantity.

Find

1). 28% of 50	2). 20% of 400	3). 15% of 240	4). 36% of 125
5). 16% of 250	6). 4% of 150	7). 40% of 600	8). 75% of 440
9). 15% of 300	10). 35% of 200	11). 45% of 720	12). 2% of 500
13). 7% of 400	14). 96% of 900	15). 21% of 720	16). 54% of 400
17). 31% of 720	18). 34% 0f 340	19). 39% of 960	20). 17% of 730
21). 16% of £240	22). 92% of £18	23). 23% of £26	24). 66% of £42
25). 24% of £89	26). 19% of £72	27). 41% of £84	28). 5% of £63
29). 52% of £63	30). 88% of £140	31). 63% of £12	32). 28% of £8
33). 29% of 56 Kg	34). 53% of 500 Kg	35). 43% of 400 Kg	36). 35% of 6 Kg
37). 37% of 7 Kg	38). 8% of 3 Kg	39). 83% of 9 Kg	40). 94% of 7 Kg
41). 69% of 2 m	42). 27% of 37 m	43). 14% of 4 m	44). 46% of 210 m
45). 12% of 170 cm	46). 58% of 1800 m	47). 34% of 16 m	48). 62% of 4 m
49). 33% of 9 m	50). 13% of £72	51). 45% of 38 Kg	52). 79% of 94 m
53). 72% of £130	54). 74% of 20 cm	55). 59% of £96	56). 91% of 104 Kg
57). 44% of 78 m	58). 32% of 230 cm	59). 72% of £13	60). 4% of 63 Kg.

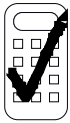## B). Percentage Increase and Decrease of a Quantity.

Increase

|			
1). 30 by 20%	2). 70 by 40%	3). 60 by 15%	4). 120 by 5%
5). 300 by 48%	6). 200 by 4%	7). 120 by 35%	8). 440 by 85%
9). 170 by 34%	10). 215 by 46%	11). 720 by 4%	12). 90 by 17%
13). 440 by 68%	14). 960 by 12%	15). 740 by 8%	16). 490 by 24%
17). 320 by 74%	18). 340 by 47%	19). 960 by 33%	20). 30 by 19%
21). £260 by 15%	22). £16 by 30%	23). £28 by 90%	24). £44 by 12%
25). £89 by 17%	26). £72 by 39%	27). £84 by 11%	28). £63 by 57%
29). £63 by 99%	30). £146 by 9%	31). £12 by 18%	32). £8 by 44%
33). 58 Kg by 24%	34). 580 Kg by 6%	35). 400 Kg by 17%	36). 6 Kg by 36%
37). 7 Kg by 92%	38). 8 Kg by 23%	39). 14 Kg by 78%	40). 27 Kg by 19%
41). 2 m by 35%	42). 57 m by 74%	43). 14 m by 82%	44). 210 m by 63%
45). 170 cm by 6%	46). 1800 m by 1%	47). 16 m by 34%	48). 4 m by 84%

Decrease

1). 60 by 20%	2). 90 by 20%	3). 80 by 15%	4). 220 by 5%
5). 500 by 48%	6). 800 by 4%	7). 120 by 35%	8). 440 by 85%
9). 370 by 34%	10). 115 by 46%	11). 320 by 4%	12). 80 by 17%
13). 940 by 68%	14). 760 by 12%	15). 780 by 8%	16). 590 by 34%
17). 120 by 72%	18). 640 by 27%	19). 260 by 73%	20). 60 by 9%
21). £290 by 45%	22). £18 by 30%	23). £48 by 70%	24). £54 by 22%
25). £29 by 17%	26). £42 by 39%	27). £54 by 11%	28). £83 by 5%
29). £83 by 39%	30). £196 by 9%	31). £22 by 68%	32). £7 by 44%
33). 54 Kg by 24%	34). 380 Kg by 6%	35). 800 Kg by 27%	36). 5 Kg by 36%
37). 9 Kg by 92%	38). 3 Kg by 53%	39). 34 Kg by 68%	40). 97 Kg by 19%
41). 1 m by 35%	42). 97 m by 94%	43). 64 m by 12%	44). 610 m by 53%
45). 190 cm by 8%	46). 1300 m by 1%	47). 19 m by 4%	48). 2 m by 74%

Licensed to The Royal Grammar School, High Wycombe help@www.10ticks.co.uk

Worded Questions.

1). A stereo costs £320. In a sale it is reduced by 25%. What is the sale price ?

2). An antique clock cost £540. It's price is increased by 18% in a year. What is it now worth ?

3). £600 is put in a bank. After a year the money has increased by 8%. How much is now in the bank ?

4). A second-hand car costs £2400. The price falls by 45% when it is sold again. How much is it sold for ?

5). A season ticket for Bolton F.C. this season costs £410. It is to go up by 34% next season. How much will a season ticket cost next season ?

6). A shirt is slightly shop soiled so it is reduced by 30%. It was £40.50, how much is it to be sold for ?

7). The bill for a meal came to £65.40 plus 15% service charge. What was the total bill ?

8). In Durry's winter sale the following items were offered at 35% reductions.
Find the sale price.
a). Stereo £340　　b). Television £620　　c). Video recorder £180
d). Walkman £18　e). Camcorder £1200　　f). Blender £6.

9). A salesperson earns £16000 a year. She is offered a rise of 22%. How much will she now receive ?

10). A rotund gentleman weighs 92 Kg. After two months at weight watchers he loses 20% of his weight. How heavy is he now ?

11). The number of pupils in a school rises by 8%. There used to be 850 pupils, how many are there now ?

12). The Spice Girls latest single sells 40% fewer singles this week than last week. Last week it sold 120 000 singles. How many did it sell this week ?

13). A town had a population of 26 200. The total fell by 8%. What is the new population ?

14). A woman buys a house for £62 000. Ten years later she sells it for a 30% profit. How much does she sell the house for ?

15). In a terrible storm 45% of the trees in a forest are felled. If the forest originally had 9 200 trees, how many are left standing ?

16). Billy has all 32 of his teeth. After a chance encounter with a bulldozer he loses 75% of his teeth. How many has he left ?

17). After Christmas Bob's weight has increased by 32%. He was 60 Kg, what is his current weight ?

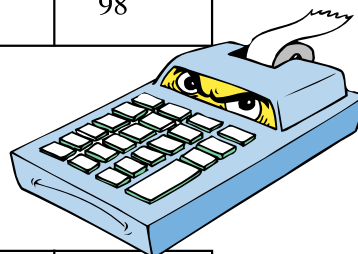18). John throws the javelin 52 metres. His next throw is 12% better. How far has he thrown the javelin this time ?
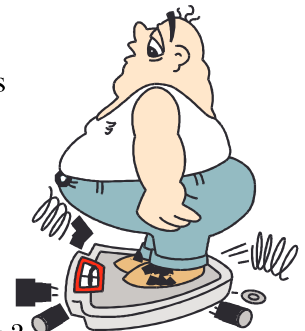
C. Finding the original quantity.

Fill in the table, finding the original prices for these percentage **increases**.

	Original Price, £	Percentage Increase, %	New Price, £		Original Price, £	Percentage Increase, %	New Price, £
1).		12	22.40	2).		15	41.40
3).		25	58.75	4).		16	106.72
5).		8	61.56	6).		12	156.80
7).		32	125.40	8).		45	188.50
9).		18	299.72	10).		26	122.22
11).		32	42.24	12).		41	100.11
13).		63	244.50	14).		19	285.60
15).		8	853.20	16).		3	638.60
17).		9	52.32	18).		12	103.04
19).		31	93.01	20).		23	1168.50
21).		47	1764	22).		72	5848
23).		41	109.98	24).		20	5.40
25).		16	14.79	26).		32	159.06
27).		45	14.79	28).		5	10.08
29).		30	34.45	30).		75	98

Fill in the table, finding the original prices for these percentage **decreases**.

	Original Price, £	Percentage Decrease, %	New Price, £		Original Price, £	Percentage Decrease, %	New Price, £
1).		20	80	2).		10	216
3).		30	56	4).		15	102
5).		20	9.60	6).		25	52.50
7).		10	30.60	8).		40	39
9).		35	143	10).		60	6
11).		35	29.25	12).		32	40.80
13).		24	13.68	14).		16	117.60
15).		18	4.92	16).		34	415.80
17).		62	30.40	18).		48	78
19).		71	13.92	20).		63	170.20
21).		3	3.88	22).		28	56.16
23).		78	18.59	24).		67	462
25).		55	5.94	26).		16	78.96
27).		30	8.89	28).		25	105.36
29).		75	3.08	30).		80	3.94

help@www.10ticks.co.uk

Worded Questions.

1). A camera is reduced by 5% in a sale. The sale price is £15.20. What was the original price?

2). An antique clock's price increases by 40% in a year. It now costs £112. What was it worth ?

3). Jean puts some money into shares. After a year the share price has increased by 16%. It is now worth £139.20. How much was originally spent on shares ?

4). Ian buys a second-hand car. The price falls by 24%. He sells it for £2356. How much did he pay for it ?

5). A season ticket for Bolton F.C. this season is to go up by 20%. It will cost £288. How much was a season ticket last season ?

6). A shirt is slightly shop soiled so it is reduced by 25%. It is now £12, how much was it to be sold for ?

7). The bill for a meal came to the cost of the meal plus 15% service charge. The total cost was £80.50. What was just the cost of the meal ?

8). In Durry's winter sale the following items where offered at 35% reductions. Here is the sale price, find the original price.
   a). Stereo £130   b). Television £351   c). Video recorder £97.50
   d). Walkman £9.10 e). Camcorder £520   f). Blender £5.85.

9). A salesperson is offered a rise of 12%. She will now earn £268.80 weekly. How much did she get before her rise ?

10). A slim gentleman, after two months at weight watchers, loses 35% of his weight. He is weighed at 41.6 Kg. How heavy was he before he joined weight watchers ?

11). The number of pupils in a school rises by 15%. There are now 805 pupils, how many did there used to be ?

12). The Herb Boys latest single sells 65% fewer singles this week than last week. It sold 29 750 singles this week. How many did it sell last week ?

13). A village has a population of 2058 after falling by 2%. What was the earlier population ?

14). A woman sells a house for £104 000. She makes 30% profit. How much did she buy the house for originally ?

15). In a terrible storm 45% of the trees in a forest are felled. If the forest has 12 100 trees left standing, how many trees were originally standing in the forest ?

16). Billy, after a chance encounter with a bulldozer, loses 25% of his teeth. He has 24 left. How many did he start with ?

17). Since Christmas Bob's weight has increased by 18%. He weighs 73.16 Kg, what was his weight before Christmas ?

18). Jenny throws the javelin 52.08 metres. This is 24% better than her last throw. How far was her last throw with the javelin ?

                   help@www.10ticks.co.uk

D. Finding a Percentage.

Where necessary leave the answers to **1 decimal place**. Find

1). 15 as a percentage of 60
2). 120 as a percentage of 600
3). 200 as a percentage of 2000
4). 30 as a percentage of 60
5). 80 as a percentage of 200
6). 60 as a percentage of 300
7). 74 as a percentage of 200
8). 42 as a percentage of 168
9). 112 as a percentage of 160
10). 42 as a percentage of 56
11). 36 as a percentage of 50
12). 132 as a percentage of 150
13). 216 as a percentage of 360
14). 45 as a percentage of 225
15). 189 as a percentage of 420
16). 222 as a percentage of 370
17). 6 as a percentage of 150
18). 324 as a percentage of 360
19). 45 as a percentage of 60
20). 153 as a percentage of 180
21). 598 as a percentage of 920
22). 342 as a percentage of 380
23). 80 as a percentage of 320
24). 224 as a percentage of 400
25). 48 as a percentage of 192
26). 36 as a percentage of 288
27). 183 as a percentage of 600
28). 54 as a percentage of 144
29). 170 as a percentage of 400
30). 33 as a percentage of 264
31). 21 as a percentage of 40
32). 27 as a percentage of 250
33). 65 as a percentage of 200
34). 25 as a percentage of 40
35). 48 as a percentage of 128
36). 220 as a percentage of 480
37). 80 as a percentage of 150
38). 5 as a percentage of 80
39). 48 as a percentage of 350
40). 50 as a percentage of 225
41). 56 as a percentage of 90
42). 72 as a percentage of 92
43). 140 as a percentage of 360
44). 472 as a percentage of 500
45). 46 as a percentage of 73
46). 600g as a percentage of 1Kg
47). 30cm as a percentage of 2m
48). 450mm as a percentage of 1.5m
49). 12mins as a percentage of 2 hrs
50). 3p as a percentage of £1.50
51). 15mm as a percentage of 6cm
52). 340mm as a percentage of 85cm
53). 450m as a percentage of 2Km
54). 12cm as a percentage of 2m
55). 320ml as a percentage of 4 litres
56). 10 hrs as a percentage of 2 days
57). 2 ft as a percentage of 4yds
58). 480m as a percentage of 1.4Km
59). 90ml as a percentage of 5 litres
60). 80mg as a percentage of 6g

Worded Questions.

1). In a school of 400 pupils, 250 are girls. What percentage are girls ?

2). In a crate of apples 33 are bad. The crate holds 264 apples. What percentage are bad ?

3). A boy gets 29 marks out of 50 in his maths exam. What percentage did he score ?

4). A farmer has 350 birds, of which 140 are ducks. What percentage of ducks does he have ?

5). In a class of 40 children 24 are girls. What percentage are girls ?

6). In September it rained for 15 days. What percentage of days did it rain for ?

7). The captain of a football team scored 17 out of the 85 goals they scored that season. What percentage of the goals did he score ?

       help@www.10ticks.co.uk

8). In the last maths test 18 out of 54 pupils failed. What percentage of pupils failed ?

9). In a general election in Numberland where 6400 people live. 2560 voted labour, 1600 voted Conservative, 1920 voted Liberal and 320 did not vote. Find what percentage of people voted for each party.

10). In a box of 500 eggs 32 were broken. What percentage of eggs were broken ?

11). On a Friday night 18 pupils were in detention from a school of 800 pupils. What percentage of the school were in detention that Friday night ?

12). 360 buses run from a depot, but 72 are being repaired. What percentage of the total are in service ?

13). One day 132 trains arrive at a railway station and 99 are on time. What percentage of them are late ?

14). In an exam a pupil gets 54 out of 72 marks. What percentage of the exam does he get wrong ?

15). A dentist looks at Jean's 32 teeth, 12 of them have fillings. What percentage don't have fillings ?

16). Billy has 250 school meals in a year. He has chips for 195 meals. What percentage of school meals does Billy not have chips ?

17). In a classroom there are 18 girls and 14 boys. What percentage in the classroom are girls ?

18). A farmer has 120 sheep and 180 cows. What percentage of these animals are cows ?

19). For her birthday Beth gets 6 presents wrapped in red paper and 14 presents wrapped in blue paper. What percentage of her presents are wrapped in red paper ?

20). Alex has 3 dolls, 12 teddy bears and 5 cuddly toys. What percentage of these are
a). teddy bears,   b). dolls,   c). cuddly toys ?

21). In a popularity vote, Hazel gets 65 votes, Nigel 40 votes, Billy 90 votes and Lynne 105 votes. Find what percentage of the vote each person received.

22). Only three people in the hockey team scored last season. Hayley scored 9, Sam scored 15 and Hazel scored 1 goal. What percentage of the goals did each score ?

23). Bertie collects leaves. He has 2000 in total. He has 700 green leaves, 500 red leaves and 800 mouldy leaves.
a).   What percentage are red leaves ?
b).   What percentage are **not** mouldy leaves ?
c).   What percentage are **not** green leaves ?

24). At the zoo there are 5 ice-cream kiosks. The first sold 900 ice-creams, the second 350 ice-creams, the third 450 ice-creams, the fourth 1050 ice-creams and the fifth 700 ice-creams. Find the percentage of ice-creams sold at each kiosk.

Licensed to The Royal Grammar School, High Wycombe   help@www.10ticks.co.uk

E. Percentage Increase and Decrease.

A.   Find the percentage **increase** for the following questions.
Leave answers, where appropriate, to 1 decimal place.

1).	400 is increased to 600	2).	40 is increased to 50
3).	125 is increased to 170	4).	50 is increased to 55
5).	80 is increased to 96	6).	25 is increased to 35
7).	340 is increased to 357	8).	140 is increased to 182
9).	530 is increased to 901	10).	2.4 is increased to 3.6
11).	90m is increased to 108m	12).	£150 is increased to £187.50
13).	£64 is increased to £86.40	14).	420cm is increased to 472.5cm
15).	72m is increased to 88.2m	16).	80Km is increased to 90Km
17).	$96 is increased to $127.20	18).	630Kg is increased to 973.35Kg
19).	40g is increased to 45g	20).	12 litres is increased to 19.86 litres
21).	24m is increased to 25.32m	22).	35ft is increased to 40ft
23).	17g is increased to 33.66g	24).	£84 is increased to £84.84
25).	125Kg is increased to 248.125Kg	26).	92ml is increased to 131.1ml
27).	6Km is increased to 10.47Km	28).	18p is increased to 25p
29).	£2 is increased to £2.45	30).	16mg is increased to 19mg.

B.   Find the percentage **decrease** for the following questions. Leave answers, where appropriate, to 1 decimal place.

1).	500 is decreased to 200	2).	150 is decreased to 120
3).	20 is decreased to 16	4).	40 is decreased to 32
5).	240 is decreased to 72	6).	60 is decreased to 42
7).	25 is decreased to 15	8).	92 is decreased to 23
9).	48 is decreased to 36	10).	420 is decreased to 302.4
11).	32p is decreased to 20p	12).	140cm is decreased to 45.5cm
13).	84Kg is decreased to 75.6Kg	14).	8Km is decreased to 1.776Km
15).	40mg is decreased to 25mg	16).	12ml is decreased to 9ml
17).	342Kg is decreased to 282.15Kg	18).	64m is decreased to 37.2m
19).	£196 is decreased to £113.68	20).	24m is decreased to 22.68m
21).	18cm is decreased to 0.27cm	22).	2.4Km is decreased to 2.352Km
23).	7 litres is decreased to 3.598 litres	24).	£3.60 is decreased to £2
25).	1.5m is decreased to 0.51m	26).	25g is decreased to 3.5g
27).	$36 is decreased to $35.64	28).	84cm is decreased to 81.9cm
29).	62p is decreased to 43p	30).	£1.72 is decreased to 98p.

Worded Questions.

1).   In a storm 144 fruit trees were left standing out of 180 fruit trees
in an orchard. What is the percentage decrease in the number of trees ?

2).   A javelin thrower has best throw of 60m. In the next competition he throws 72m.
What is the percentage increase of his personal best ?

3).   A wine manufacturer puts down 250 bottles for 3 years. After 3 years only 220 bottles
are in tact. What is the percentage decrease in the number of bottles ?

4).   A man weighs 65Kg. After two weeks on a diet he weighs 58Kg. What is his percentage
decrease in weight ?
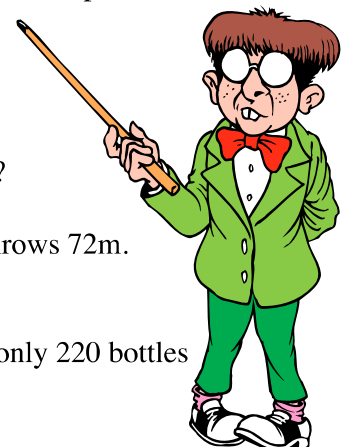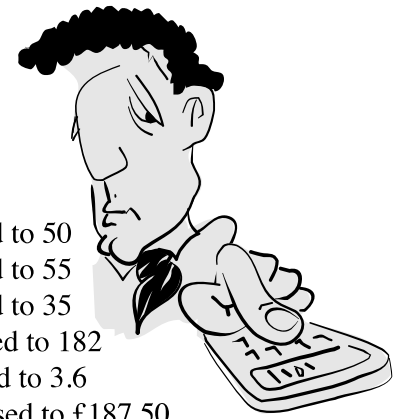
5). A board 130 cm long is trimmed to 104 cm. What percentage has been removed ?

6). A piece of elastic 48 cm long is stretched to 60 cm. What percentage of the original length is the increase ?

7). There are now 29 girls in a class that originally had 25 girls in it. What is the percentage increase in the number of girls in the class ?

8). After an accident, there are 222 litres of water left in a tank which originally held 240 litres. What is the percentage loss of water ?

9). Last year there were 500 children in a school. This year there are 565. What is the percentage increase in the number of pupils ?

10). A man's weekly wage was £336, but now he earns £420. What is the percentage increase in the man's wage ?

11). An article which used to cost £2.40 now only costs £1.60. What is the percentage decrease in the cost of this article ?

12). The average number of school dinners taken by children fell from 180 to 165. What is the percentage decrease in the number taking school dinners ?

13). A woman collects pairs of shoes. At the start of the year she has 150 pairs, by the end of the year she has 175 pairs. What is the percentage increase in the number of pairs of shoes she has ?

14). A small child weighs herself at the start of year 5. She weighs 25 Kg, at the end of year 5 she weighs 26 kg. Find the percentage increase in her weight.

15). A gardener measures the height of his sunflower. In the morning it is 400 cm tall and in the evening it is 440 cm tall. By what percentage has the sunflower increased during the day ?

16). A child aged 6 is weighed at 15 Kg, by the time the child is 13 he weighs 40 kg. What is his percentage increase in weight ?

17). At weight watchers a man is weighed at 95 Kg before his diet and 76 Kg after his diet. What is his percentage decrease in weight ?

18). A piece of wood 810 mm long is reduced to 729 mm long. What is the percentage decrease in its length ?

19). A flask of water is heated from 20°C to 26°C, find the percentage increase in the temperature of the water ?

20). A box of matches originally holds 84 matches, when counted only 63 were left. What percentage of matches had been used ?

21). The time required to make an article was reduced from 8h 20 mins to 7 h 45 mins. What was the percentage saving in time ?

     help@www.10ticks.co.uk