3.7 Percentage Change and Multipliers: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 After a 30% increase, the price of a watch is £156. Work out the original price.

(3)

2 A player's weekly pay changed from 150 to 90. Work out the percentage decrease.

(3)

3 After a 20% increase, the price of a bicycle is £60. Work out the original price.

(3)

4 A town's population changed from 50 to 55. Work out the percentage increase.

(3)

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5 The price of a TV is £80 before VAT. VAT is charged at 30%. Work out the price including VAT.

(2)

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6 A ticket costs £120. The price falls by 35%. Work out the new price.

(2)

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7 A car is worth £80. Its value is increased by 15% in the first year and then decreased by 10% of its new value in the second year. Work out its value at the end of the second year.

(3)

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8 Decrease £50 by 30%.

(2)

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9 (a) Write down the multiplier for a 35% increase.
(b) Use your multiplier to increase 120 by 35%.

(2)

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10 A car is worth £100. Its value is decreased by 20% in the first year and then decreased by 10% of its new value in the second year. Work out its value at the end of the second year.

(3)

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11 (a) Write down the multiplier for a 7% decrease.
(b) Use your multiplier to decrease 50 by 7%.

(2)

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12 A car is worth £240. Its value is decreased by 5% in the first year and then decreased by 15% of its new value in the second year. Work out its value at the end of the second year.

(3)

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13 Increase £25 by 25%.

(2)

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14 A car is worth £500. Its value is increased by 10% in the first year and then decreased by 5% of its new value in the second year. Work out its value at the end of the second year.

(3)

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15 A ticket costs £36. The price rises by 40%. Work out the new price.

(2)

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16 After a 25% increase, the price of a pair of trainers is £150. Work out the original price.

(3)

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17 The price of a TV is £80 before VAT. VAT is charged at 15%. Work out the price including VAT.

(2)

---

18 A coat costs £36. In a sale its price is reduced by 8%. Work out the new price.

(2)

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19 Write down 20% of 150.

(1)

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20 Find 8% of 250.

(1)

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Mark scheme · 3.7 Percentage Change and Multipliers: 1-hour Pack

Question 1

multiplier 1.3 (or 130% = £156)	M1
£156 ÷ 1.3	M1
£120 cao	A1

Answer: **£120**

Question 2

change = 60 found	M1
60 ÷ 150 x 100 (change over original)	M1
40% decrease cao	A1

Answer: **40% decrease**

Question 3

multiplier 1.2 (or 120% = £60)	M1
£60 ÷ 1.2	M1
£50 cao	A1

Answer: **£50**

Question 4

change = 5 found	M1
5 ÷ 50 x 100 (change over original)	M1
10% increase cao	A1

Answer: **10% increase**

Question 5

30% of 80 = 24 found or multiplier 1.3	M1
£104 cao	A1

Answer: **£104**

Question 6

35% of 120 = 42 or a multiplier of 0.65 used	M1
£78 cao	A1

Answer: **£78**

Question 7

first change: £92 (or multiplier 1.15)	M1
second change applied to the new value	M1
£82.80 cao	A1

Answer: **£82.80**

Question 8

30% of 50 = 15 or a multiplier of 0.7 used	M1
£35 cao	A1

Answer: **£35**

Question 9

(a) 1.35	B1
(b) 162	B1

Answer: **(a) 1.35, (b) 162**

Question 10

first change: £80 (or multiplier 0.8)	M1
second change applied to the new value	M1
£72 cao	A1

Answer: **£72**

Question 11

(a) 0.93	B1
(b) 46.5	B1

Answer: **(a) 0.93, (b) 46.5**

Question 12

first change: £228 (or multiplier 0.95)	M1
second change applied to the new value	M1
£193.80 cao	A1

Answer: **£193.80**

Question 13

25% of 25 = 6.25 or a multiplier of 1.25 used	M1
£31.25 cao	A1

Answer: **£31.25**

Question 14

first change: £550 (or multiplier 1.1)	M1
second change applied to the new value	M1
£522.50 cao	A1

Answer: **£522.50**

Question 15

40% of 36 = 14.4 or a multiplier of 1.4 used	M1
£50.40 cao	A1

Answer: **£50.40**

Question 16

multiplier 1.25 (or 125% = £150)	M1
£150 ÷ 1.25	M1
£120 cao	A1

Answer: **£120**

Question 17

15% of 80 = 12 found or multiplier 1.15	M1
£92 cao	A1

Answer: **£92**

Question 18

8% of 36 = 2.88 or a multiplier of 0.92 used	M1
£33.12 cao	A1

Answer: **£33.12**

Question 19

30 cao	B1

Answer: **30**

Question 20

20 cao	B1

Answer: **20**

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