3.7 Percentage Change and Multipliers: 30-minute Pack

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Stretch question. After two successive percentage changes the final price of an item is £198. First it was increased by p% and then decreased by 10%, where p is 20. Work out the original price before the two changes. Show your steps.

(4)

2 A town's population changed from 60 to 69. Work out the percentage increase.

(3)

3 A jacket that normally costs £80 is reduced by 25%. Work out the sale price.

(1)

4 A car is worth £240. Its value is decreased by 20% in the first year and then increased by 30% of its new value in the second year. Work out its value at the end of the second year.

(3)

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5 (a) Write down the multiplier for a 15% decrease.
(b) Use your multiplier to decrease 200 by 15%.

(2)

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6 After a 5% increase, the price of a pair of trainers is £42. Work out the original price.

(3)

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7 (a) Write down the multiplier for a 35% increase.
(b) Use your multiplier to increase 80 by 35%.

(2)

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8 Find 5% of 240.

(1)

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9 Increase 150 by 18%. Give your answer to the nearest whole number.

(2)

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10 Write down the multiplier to decrease an amount by 30%.

(2)

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Mark scheme · 3.7 Percentage Change and Multipliers: 30-minute Pack

Question 1

use of multiplier for increase 1 + p/100 = 1.20 and decrease multiplier 0.9 to form equation original x 1.20 x 0.9 = 198	M1
correct combination 1.20 x 0.9 = 1.08 or equivalent	M1
division to find original: 198 / 1.08	M1
183.33... rounded to 183.33 cao	A1

Answer: **183.33**

Question 2

change = 9 found	M1
9 ÷ 60 x 100 (change over original)	M1
15% increase cao	A1

Answer: **15% increase**

Question 3

£60 cao	B1

Answer: **£60**

Question 4

first change: £192 (or multiplier 0.8)	M1
second change applied to the new value	M1
£249.60 cao	A1

Answer: **£249.60**

Question 5

(a) 0.85	B1
(b) 170	B1

Answer: **(a) 0.85, (b) 170**

Question 6

multiplier 1.05 (or 105% = £42)	M1
£42 ÷ 1.05	M1
£40 cao	A1

Answer: **£40**

Question 7

(a) 1.35	B1
(b) 108	B1

Answer: **(a) 1.35, (b) 108**

Question 8

12 cao	B1

Answer: **12**

Question 9

use of 150 x 1.18 or calculation of 18% = 27 and addition	M1
177 cao	A1

Answer: **177**

Question 10

correct reasoning: 100% - 30% = 70% or 0.70	M1
0.7 or 0.70 cao	A1

Answer: **0.7**

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