

> Answers to 'Test your understanding' questions in "Quantitative Techniques" Digital Coursebook

Test your understanding 1

- 1 a 57.3%
b 62.8%
c 124.7%
d 64.5%
- 2 a 33.3%
b 27.7%
c 269.2%
d 2.8%
- 3 a 0.245
b 0.25
c 0.99
d 1.25
- 4 a $\frac{15}{25} \times 100\% = 0.6 \times 100\% = 60\%$
b $\frac{10}{25} \times 100\% = 0.4 \times 100\% = 40\%$
- 5 $25\% = 0.25$; $0.25 \times \$17\,000 = \4250
- 6 $14\% = 0.14$; $0.14 \times 46.3 \text{ million} = 6.5$, i.e. 6.5 million

Test your understanding 2

- 1 $20\% = 0.2$; $0.2 \times 30 \text{ million} = 6 \text{ million}$, i.e. price increased by 6 million, so the book's new price is 30 million + 6 million = 36 million. Alternatively, $30 \times 1.2 = 36 \text{ million}$.
- 2 a $\frac{272 - 259}{259} \times 100 = \frac{13}{259} \times 100 = 0.050 \times 100 = 5.0\%$
b $\frac{267 - 272}{272} \times 100 = \frac{-5}{272} \times 100 = -0.018 \times 100 = -1.8\%$
- 3 $7.2\% = 0.072$; $0.072 \times 32.9 \text{ million} = 2.4 \text{ million}$ was the population increase. Therefore the population in 2010 was 32.9 million + 2.4 million = 35.3 million. Alternatively, $32.9 \text{ million} \times 1.072 = 35.3 \text{ million}$.
- 4 $\frac{1 - 1.2}{1} \times 100 = -0.2 \times 100 = -20\%$
- 5 $8\% = 0.08$; $0.08 \times \$2.5 \text{ million} = \0.2 million , which is the increase in profits. Therefore 2010 profits were \$2.5 million + \$0.2 million = \$2.7 million. Alternatively, $\$2.5 \text{ million} \times 1.08 = \2.7 million .

Test your understanding 3

Student's own answer.

Test your understanding 4

- a Positive relationship; income is independent variable, saving is dependent variable.
- b Negative relationship; price is independent variable; number of DVDs is dependent variable.
- c Positive relationship; years of working experience is independent variable; salary is dependent variable.
- d Positive relationship; temperature is independent variable; number of swimmers is dependent variable.

Test your understanding 5

- 1
 - a Movement along the D curve.
 - b D shifts right.
 - c D shifts left.
- 2
 - a Movement along the S curve.
 - b S shifts right.
 - c S shifts left.

Test your understanding 6

- a 70 units
- b €280
- c $€280 - €150 = €130$