

## Answers Sheet

### Repeated Percentage Change

1.

Increase by 10%  $\longrightarrow$   $\times 1.1$

$$1.1 \times 1.1 = 1.21$$

$$(\text{Ans} - 1) \times 100 = 21\%$$

---

2.

$$0.9 \times 0.8 = 0.72$$

$$(1 - \text{Ans}) \times 100 = 28\%$$

Zohaib is correct

Price have decreased by 28%

---

3.

$$x \times 1.05^3 = 4250.45$$

$$x = 4250.45 / 1.05^3$$

$$x = \text{£}3672$$

---

4.

$$x \times 1.02^5 = 2570.64$$

$$x = 2570.64 / 1.02^5$$

$$x = \text{£}2328$$

---

5.

Let multiplier = y

$$3500 \times 1.04 \times y^2 = 3800.96$$

$$y^2 = 3800.96 / (3500 \times 1.04)$$

$$y^2 = 1.044$$

$$y = 1.0217$$

$$x = (\text{Ans} - 1) \times 100$$

$$= 2.17 \%$$

---

**6.**

Let multiplier = y

$$4000 \times 1.02 \times y^3 = 5238.74$$

$$y^3 = 5238.74 / (4000 \times 1.02)$$

$$y^3 = 1.284$$

$$y = 1.087$$

$$x = (\text{Ans} - 1) \times 100$$

$$= 8.7\%$$

---

**7.**

$$y^5 = 1.5$$

$$y = \sqrt[5]{1.5}$$

$$y = 1.0844$$

$$x = (\text{Ans} - 1) \times 100$$

$$= 8.4\%$$

---

**8.**

$$y^4 = 0.5$$

$$y = \sqrt[4]{0.5}$$

$$y = 0.8408$$

$$x = (1 - \text{Ans}) \times 100$$

$$= 15.9\%$$

---

**9.**

$$y^7 = 2$$

$$y = \sqrt[7]{2}$$

$$y = 1.1040$$

$$x = (\text{Ans} - 1) \times 100$$

$$= 10.4\%$$

---

**10.**

$$y^4 = 0.6$$

$$y = \sqrt[4]{0.6}$$

$$y = 0.880$$

$$x = (1 - \text{Ans}) \times 100$$

$$= 12\%$$

**11.**

$$A = \pi r^2$$

$$\text{New circle } A = \pi (1.09r)^2$$

$$= 1.1881 \pi r^2$$

$$= (1.1881 - 1) \times 100$$

$$= 18.81\%$$

---

**12.**

$$A = \pi r^2$$

$$\text{New circle } 1.04 A = \pi (xr)^2$$

$$1.04 A = x^2 \pi r^2$$

$$1.04 = x^2$$

$$x = 1.0198$$

$$(1.0198 - 1) \times 100$$

$$= 1.98\%$$

---

**13.**

$$V = l^3$$

$$\text{New cube } V = (1.14l)^3$$

$$= 1.4815 l^3$$

$$(1.4815 - 1) \times 100$$

$$= 48.1\%$$

---

**14.**

$$1.22 V = (xl)^3$$

$$\text{New cube } 1.22V = x^3 l^3$$

$$1.22 = x^3$$

$$x = 1.068529$$

$$(1.068529 - 1) \times 100$$

$$= 6.85\%$$

---