# Percentage Problems Mark Scheme

**1.** 15.50 3

100 – 18 = 82

Normal price = $\frac{12.71}{82} \times 100$

*B1 for sight of 82 oe*

*M1 for* $\frac{12.71}{82} \times 100$

*A1 for 15.50*

**[3]**

**2.** 650 3

80% = 520

$\frac{520}{80} \times 100$

*M1 for (100 – 20)% = 520*

*M1 Dep for* $\frac{520}{"80"} \times 100$

*A1 cao*

**[3]**

**3.** 4 2

5469.78 ÷ 1.05 ÷ 1.05 ÷ 1.05…
**or** 4500 × 1.05 × 1.05……

*M1 for 5469.78 ÷ 1.05 or 4500 × 1.05 or 4725 seen.*

*A1 cao*

**[2]**

**4.** (a) £5062.50 3

£12000 × 0.25 = £3000; £12000 – £3000 = £9000
£9000 × 0.25 = £2250; £9000 – £2250 = £6750
£6750 × 0.25 = £1687.50; £6750 – £1687.50 =

*M1 for 12000 × 0.75 (= 9000) oe or £3000 or £23437.50 seen*
*M1 (dep) for at least two further depreciation calculations (complete steps)*
*A1 cao*
***OR** M2 for 12000 × (0.75)$^3$ or 5062.50 seen*
*(M1 for 12000 × (0.75)$^n$, n = 2 or 4)*

(b) 0.4096 2

0.8 × 0.8 × 0.8 × 0.8 (oe)

*M1 0.8$^4$ (oe)*

*A1 cao*

**[5]**

**5.** 2315.25 3

*M1 2000* $\times \frac{5}{100}$ *or 2000 × 1.05 or 2100 seen or 100 (clearly the interest) seen*
*M1 for a complete compound interest method shown*
*A1 cao*
*[SC: B1 for 2300 or 300 seen with or without working]*

**[3]**

**6.** (a) 4.5 1

*B1 cao*

(b) 1205.86 2

$500 \times 1.045^{20} = 1205.857\ldots\ldots$

*M1 for* $500 \times 1.045^{20}$
*A1 for 1205.85 – 1206*
*(SC:B1 for 705.85 – 706 no working)*

**[3]**

**7.** (a) He has taken it from this year instead of last year 1

*B1 Reason or appropriate calculation*

(b) $\frac{240}{1.2}$
200 2

*M1* $\frac{240}{1.2}$ *oe*
*A1 cao*

**[3]**

**8.** $102 \div 0.85$
120 3

*M1 for 85% = 102 oe*
*M1 for* $\frac{102}{0.85}$ ***or*** $\frac{102}{85} \times 100$ *oe*
*A1 cao*

**[3]**

**9.** 275 3

$\frac{242}{0.88}$

*M2 for* $\frac{242}{(100-12)} \times 100$*oe*

*[M1 for* $\frac{242}{(100-12)}$ *oe]*

*A1 cao*

**[3]**

**10.** 6500 3

80% = 5200
5200 ÷ 80 × 100

*M1 for 100 – 20% = 5200*
*M1 for 5200 ÷ "80" × 100*
*A1 cao*

**[3]**

**11.** 275 3

80% = 220
220 ÷ 80 × 100

*M1 for recognising that 80% is equivalent to 220*
*M1 for 220 ÷ 80 × 100 oe*
*A1 cao*

**[3]**