Chapter 4 Gifted and Enrichment Answers

1. a) 10% of 0.01 = 0.10 × 0.01
= 0.001
0.01% of 10 = 0.0001 × 10
= 0.001
They are the same.

b) 120% of 0.1% = 1.20 × 0.001
= 0.0012
0.1% of 120% = 0.001 × 1.2
= 0.0012
They are the same.

c) $\frac{1}{5}$ of 0.2% = $\frac{1}{5}$ × 0.002
= 0.0004
$\frac{1}{2}$% of 5 = 0.005 × 5
= 0.025
They are not the same.
$\frac{1}{2}$% of 5 is greater.

2. If she achieved 100% last year and 110% this year and this continues, then in 2 years, she will have achieved
110% of 110% = 1.10 × 1.10
= 1.21 or 121%
Year 3:
110% of 121% = 1.10 × 1.21
= 1.331 or 133.1%
Year 4:
110% of 133.1% = 1.10 × 1.331
= 1.4641 or 146.41%
Year 5:
110% of 146.41% = 1.10 × 1.4641
= 1.61051 or 161.051%
Year 6:
110% of 161.051% = 1.10 × 1.61051
= 1.771561
≈ 1.77 or 177%
Year 7:
110% of 177% = 1.10 × 1.77
= 1.947 or 194.7
Year 8 should be over 200%, or more than double, checking:
110% of 194.7% = 1.10 × 1.947
= 2.1417 or 214.17%
In 8 years, she will have doubled her sales.

3. A change from 1 ppm to 2 ppm is a change of 1 ppm; 1 ppm as a percent of 1 ppm is 100%.

4. $85.99 with a 30% discount is
70% of 85.99 = 0.70 × 85.99 = 60.193
The cost from this supplier is $60.19.
$38.69 plus a 35% markup is
135% of 38.69 = 1.35 × 38.69
= 52.2315
The cost from the second supplier is $52.23.
The second supplier offers the better buy.

5. 30% more than 250 g is
130% of 250 = 1.3 × 250 = 325
The special-offer jar holds 75 g more.
So, Clara is wrong saying 95 g more.
The unit cost of the regular sized-jar is $2.59 per 250 g = 259¢/250 g
= 1.036¢/g
The cost of 75 g at 1.036¢/g is 75 × 1.036 = 77.7
or 78 to the nearest cent
The extra 75 g could have cost 78¢.
So, Yvonne is correct saying a 78¢ savings.

6. The total to be shared is
$240 000 + $100 000 = $340 000
The amount for each partner is
$340 000 ÷ 2 = $170 000
The amount one partner still has to receive from the real estate is
$170 000 – $75 000 = $95 000
The amount the other partner still has to receive from the real estate is
$170 000 – $25 000 = $145 000
$145 000 as a percent of the $240 000 real estate is $\frac{145\,000}{240\,000} \times 100$
= 60.41666666…% or 60.42%
The other partner will receive 60.42% of the real estate.

7. Interest paid on the last 20% that is borrowed for 2 months
$= (20\% \text{ of } \$250\,000) \times 5\% \times \frac{2}{12}$
= 416.67 to nearest cent
Interest paid on the second 40% that is borrowed for 4 months
$= (40\% \text{ of } \$250\,000) \times 5\% \times \frac{4}{12}$
= 1666.67 to nearest cent
Interest paid on the first 40% that is borrowed for 6 months
$= (40\% \text{ of } \$250\,000) \times 5\% \times \frac{6}{12}$
= 2500
The total interest paid by the builder is
2500 + 1666.67 + 416.67 = $4583.34