

# challenge solutions

1) let  $x$  be the price (original)

Jan paid \$30 originally

$$(1.6x)(1-0.36) = \$30.72$$

$$(1.6x)0.64 = 30.72$$

$$\frac{1.024x}{1.024} = \frac{30.72}{1.024}$$

$$x = \$30$$

2)  $(120) 1.2 = 144$   
↑ new total

$$\begin{array}{r} 144 \\ -90 \\ \hline \end{array}$$

= difference  
= \$54

$$\frac{54}{90} = 60\%$$

The percent bonus Peter's dad must give is 60%.

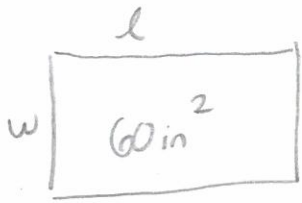
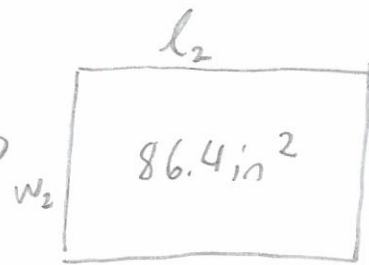
3)  $(480) 0.70$   
= 336 first sale

second sale

$$\frac{285.60}{336} = 0.85$$

The additional discount was 15% off.

4)


 $\Rightarrow$ 


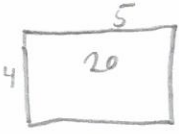
$$\text{ratio area} = 1 : 1.44$$

$$\text{ratio sides} = 1 : \sqrt{1.44}$$

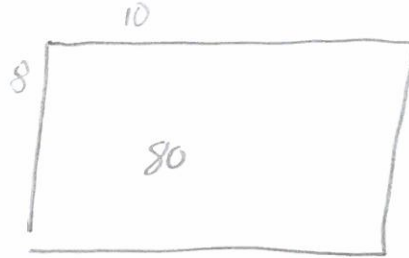
$$= 1 : 1.2$$

The sides were increased by 20%

Ex



ratio of 1:2  
for sides



ratio of sides <sup>2</sup>

5) of look up compound interest

$$\frac{20,000 (x)^2}{20,000} = \frac{22,898}{20,000}$$

$$x^2 = 1.1449$$

$$x = 1.07$$

7% interest

$$\text{b) } \frac{20,000 x^3}{20,000} = \frac{23,152.5}{20,000}$$

$$x^3 = 1.157625$$

$$x = 1.05$$

5% interest

not recommended.

This is very confusing

6)  $\frac{25}{20} = 1.25$  or 25% increase       $\frac{33}{25} = 1.32$  or 32% increase

The second raise was 7% more than the first raise.