

HW 4

1. a. Absolute Change: $\text{new-old} = 7-4 = \boxed{3 \text{ raids}}$
Relative Change: $\frac{\text{new-old}}{\text{old}} = \frac{7-4}{4} = 0.75 = \boxed{75\%}$

b. 790: 4 raids
793: x raids

$$x = 4 + \frac{50}{100} \cdot 4 = 4 + 2 = \boxed{6 \text{ raids}}$$

Absolute change: $\text{new-old} = 6-4 = \boxed{2 \text{ raids}}$

c. \$ 798: 15 raids
788: x raids

So $\boxed{6 \text{ raids}}$
in \$ 788

$$15 = x + \frac{150}{100} x$$

$$1500 = 100x + 150x$$

$$1500 = 250x$$

$$\div 250 \quad \div 250$$

$$6 = x$$

2. Guards - 10 cows
Walls - 16 cows
Belgium - 40 cows

a. Absolute: $\text{comp.} - \text{ref.} = 16-10 = \boxed{6 \text{ cows}}$
Relative: $\frac{\text{comp.} - \text{ref.}}{\text{ref.}} = \frac{16-10}{10} = .6 = \boxed{60\%}$

b. Absolute: $\text{comp.} - \text{ref.} = 10-40 = \boxed{-30 \text{ cows}}$
 $\boxed{(30 \text{ less})}$

Relative: $\frac{\text{comp.} - \text{ref.}}{\text{ref.}} = \frac{10-40}{40} = -0.75 = \boxed{75\% \text{ less}}$

c. Moat: x cows

$$40 = x + \frac{300}{100} x$$

$$= x + 3x$$

$$40 = 4x$$

$$\div 4 \quad \div 4$$

$$10 = x$$

So $\boxed{10 \text{ cows}}$

d. $10 \cdot (1 + \frac{20}{100}) \cdot (1 + \frac{25}{100}) = \boxed{15 \text{ new cows}}$

Relative change = $\frac{\text{new-old}}{\text{old}} = \frac{15-10}{10} = 0.5 = \boxed{50\%}$

3. $10 \cdot (1 + 0.05)^8 = \boxed{14.7746 \text{ talents}}$