Math 320 Section 2
Quiz 2 Key Winter 2014

1. In a photograph of a father and his daughter, the daughter's height is 3 cm and the father's height is 7 cm. If the father is actually 175 cm tall, how tall is the daughter?
*Solution.* Let $D$ be the actual daughter's height. Thus we have that

$$7 \text{ cm is to } 175 \text{ cm}$$

$$3 \text{ cm is to } D \text{ cm}$$

Hence

$$D = \frac{(3 \text{ cm}) \times (175 \text{ cm})}{(7 \text{ cm})}$$

which yields

$$D = 75 \text{ cm}.$$

2. Rewrite each of the following as decimals:
   (a) $4 \cdot 10^3 + 3 \cdot 10^2 + 5 \cdot 10^1 + 6 \cdot 10^0 + 7 \cdot 10^{-1} + 8 \cdot 10^{-2}$
   *Solution.* 4 goes to position 3, 3 to position 2, 5 to position 1, 6 to position 0, 7 to position $-1$, and 8 to position $-2$:

   $$4356.78$$

   (b) $4 \cdot 10^3 + 6 \cdot 10^{-1} + 8 \cdot 10^{-3}$
   *Solution.* 4 goes to position 3, 6 to position $-1$, and 8 to position $-3$; 0s go in between:

   $$4000.608$$

   (c) $4 \cdot 10^4 + 3 \cdot 10^{-2}$
   *Solution.* 4 goes to position 4, and 3 to position $-2$; 0s go in between:

   $$40000.03$$

   (d) $2 \cdot 10^{-1} + 4 \cdot 10^{-4} + 7 \cdot 10^{-7}$
   *Solution.* 2 goes to position $-1$, 4 to position $-4$, and 7 to position $-7$; 0s go in between:

   $$.2004007$$

3. A kilowatt hour means 1000 watts of electricity are being used continuously for one hour. The Electric utility company in Laura's town charges \$.06725 for each kilowatt hour used. Laura heats her house with four electric wall heaters that use 1250 watts per hour each. How much does it cost to heat her house for one day?
*Solution.* In one hour, the four electric wall heaters use $4 * 1250$ watts, which equal 5000 watts in one hour, or 5 kilowatt hours. Since a day consists of 24 hours, Laura is using $24 * 5$ kilowatt hours which equal 120 kilowatt hours for one day. Since each kilowatt hour costs \$.06725, the cost of using 120 kilowatt hours is $\$120 * .06725 = \$8.07$.

4. Adolf Hitler became Germany's Chancellor in what year?
   (a) 1948
   (b) 1933 xxxx
   (c) 1865
   (d) 1969
5. Who was the first human being who ever walked on the moon?
   Neil Armstrong
6. Who was the first woman to go to outer space?
   Valentina Tereskova