6.5 In-class Practice Math 085

1. Solve using zero-product property.

   a) $(3x-4)(2x+5)=0$ b) $3x^2+9x+30=2x^2-2x$
   c) $2t^2=8t$ d) $50y+5y^3=35y^2$
   e) $x^4-13x^2+36=0$ f) $(a-6)(a+6)=45$
   g) $x(x-5)=24$ h) $4(2x+3)^2-(2x+3)-3=0$

2. Given that $f(x)=x^2+12x+40$, find all values of x such that $f(x)=8$.

3. ***Group Discussion***
   a) If you divide each side of $x^2=x$ by x, you get $x=1$. If you subtract x from each side of $x^2=x$, you get $x^2-x=0$, which after factoring gives two solutions. Which method is correct? Explain.

   b) Examine the following solution to $x^2-2x=-1$:

   $$x(x-2)=-1$$
   $$x=-1 \text{ or } x-2=-1$$
   $$\text{so} \quad x=-1 \text{ or } x=1$$

   Is this method correct? Explain.

   c) Examine the following solution to $5x^2-5=0$:

   $$5(x^2-1)=0$$
   $$5(x-1)(x+1)=0$$
   $$\text{so} \quad x=5 \text{ or } x=1 \text{ or } x=-1$$

   Is this correct? Explain.

4. ***Concept Check*** Which one of the following is the correct result for solving the equation $2\boldsymbol{t}+c=k\boldsymbol{t}$ for $\boldsymbol{t}$?

   a) $\boldsymbol{t}=\frac{-c}{2-k}$ b) $\boldsymbol{t}=\frac{c-k\boldsymbol{t}}{-2}$ c) $\boldsymbol{t}=\frac{2\boldsymbol{t}+c}{k}$ d) $\boldsymbol{t}=\frac{k\boldsymbol{t}-c}{2}$

5. Solve each equation for the specified variable.
   a) $ay+by+ab=0$, for y b) $P+Prt=A$, for P
   c) $E=\frac{R+r}{r}$, for r d) $P=\frac{A}{1+r}$, for r

6. The sum of two numbers is 13 and their product is 36. Find the numbers.

7. The sum of the squares of two consecutive integers is 25. Find the integers.

8. Linda is planning to redo the floor in her bedroom, which has an area of 192 square feet. If the width of the rectangular room is 4 feet less than the length, then what are its dimensions?

9. A boy tosses a ball upward at 32 feet per second from a window that is 48 feet above the ground. The height of the ball above the ground (in feet) at time t (in seconds) is given by the formula

   $$h(t)=-16t^2+32t+48$$

   Find the time at which the ball strikes the ground.

10. Mary Gold has a rectangular flower bed that measures 4 feet by 6 feet. If she wants to increase the length and width by the same amount to have a flower bed of 48 square feet, then what will be the new dimensions?