**Extra Credit 13 – 16**

**Extra #13**

**Graph the inequalities, name the vertices and give the maximum and minimum of the function.**

**1.** y$\geq $2x – 4 **2.** y $\geq $ x – 3 **3**. x + y $\geq $ 2

 y $\geq $ -2x - 4 3x - y $\leq $ 7 4y $\leq $ x + 8

 y $\leq $ 2 2x - y $\geq $ 3 2y $\geq $ 3x - 6

 f(x, y) = -2x + y f(x, y) = x – 4y f(x, y) = 3y + x

**Extra #14**

**Solve (linear programming)**

Oaken Treasures makes two different kinds of chairs, rockers and swivels. Work on machines A and B is required to make both kinds. Machine A can be run no more than 20 hours a day. Machine B is limited to 15 hours a day. The following chart shows the time on each machine that is required to make one chair. The profit made on each chair is also shown.

|  |  |  |  |
| --- | --- | --- | --- |
| **Chair** | **Operation A** | **Operation B** | **Profit** |
| Rocker | 2 hours | 3 hours | $12 |
| Swivel | 4 hours | 1 hour | $10 |

How many chairs of each kind should Oaken Treasures make each day to maximize their profit? What is their max. profit?

**Extra #15**

**Simplify**

**1.** $\left(\frac{3}{2}e^{2}f^{4}\right)^{4}\left(\frac{-4}{3}e^{5}f\right)^{3}(\frac{-1}{6}ef^{5})$**2.** $(-n)^{4}(2xy^{2}n)^{3}$ + $(4xy^{3}n^{2})^{2}$(-3x$n^{3})$

**3.** $\frac{-20(m^{2}v)(-v)^{3}}{5\left(-v\right)^{2}(-m^{4})}$ **4.** 6$y^{2}(2y^{4})^{2}$

**5.** $\frac{25y^{8}}{10y^{4}}$ **6.** -5$v^{2}$(2$r^{3}v^{2})\left(rv^{3}\right)- (-r^{2})(16r^{2}v^{7})$

**Extra #16**

**Simplify**

**1.** $\frac{\left(3x^{-2}y^{3}\right)(5xy^{-8})}{(x^{-3})^{4}y^{-2}}$ **2.** $(\frac{x^{-3}y^{4}}{5})^{-3}$

**3.** $\frac{(-y)^{5}m^{8}}{y^{3}m^{-7}}$ **4.** $\frac{r^{-5}s^{-2}}{(r^{2}s^{5})^{-1}}$

**5.** $(\frac{7m^{-1}n^{3}}{n^{2}r^{-1}})^{-1}$ **6.** $(\frac{3xy^{-2}z}{4x^{-2}y})^{-2}$