

## Math 70 Quiz #9

1. (a)  $\frac{x^{10}}{x^3} = x^7$  (The exponent in the numerator is larger.)  
(b)  $\frac{-4y^2}{2y^8} = \frac{-2}{y^6}$  (since  $\frac{-4}{2} = -2$  and  $\frac{y^2}{y^8} = \frac{1}{y^6}$  ← Exponent in denominator is larger)  
(c)  $\frac{5a^2b^3}{15ab^3} = \frac{a}{3}$  (since  $\frac{5}{15} = \frac{1}{3}$ ,  $\frac{a^2}{a} = a$ , and  $\frac{b^3}{b^3} = 1$ )  
(d)  $(x^3)^4 = x^{3 \cdot 4} = x^{12}$   
(e)  $(9x^5)^2 = 9^2(x^5)^2 = 81x^{5 \cdot 2} = 81x^{10}$   
(f)  $\left(\frac{xy}{2}\right)^3 = \frac{(xy)^3}{2^3} = \frac{x^3y^3}{8}$   
(g)  $6^{-2} = \frac{1}{6^2} = \frac{1}{36}$   
(h)  $x^{-3}y = \frac{y}{x^3}$
2.  $6.82 \times 10^{-5} = \boxed{0.0000682}$
3.  $93,000,000 = \boxed{9.3 \times 10^7}$