Math Skills Baseline

This will not count toward your grade in any way, but it will give you an idea of the level of math skills required in this course. I will post a solution after Friday. If you have any questions, stop by to see me or visit www.SOSMath.com. With this in mind, please answer the following questions:

1. What is $\frac{1}{2x-y}-\frac{1}{x+y}$ if x=2 and y=3?

$\frac{1}{2(2)-3} - \frac{1}{2+3} = \frac{1}{4-3} - \frac{1}{5} = 1 - \frac{1}{5} = \frac{4}{5} = 0.8$

2. What is $\frac{5(2-x)}{2(x+y)}$ if x=-3 and y=5?

$\frac{5(2-(-3))}{2(-3+5)} = \frac{5(5)}{2(2)} = \frac{25}{4} = 6.25$

3. Find x if 5x - 8 = 12.

$5x = 12+8 \rightarrow x = \frac{20}{5} \rightarrow x = 4$

4. Find y if $\frac{3}{y-1}=\frac{5}{y+1}$.

$\rightarrow 3(y+1) = 5(y-1)$

$\hookrightarrow 3y+3 = 5y-5$

$\hookrightarrow 8 = 2y \rightarrow y = 4$

5. Express the following numbers in scientific notation (e.g. 501 = 5.01 x 10^2):

a. 72.6
7.26×10^{1}

b. 1,876,572
1.876572×10^{6}

c. 0.071
7.1×10^{-2}

d. 1/4
2.5×10^{-1}

e. 1/3
3.33×10^{-1}

f. 0.00015
1.5×10^{-4}

6. Express the following in decimal notation:

a. 5 x 10^{-3}
0.005

b. 3.14 x 10^{0}
3.14

c. 8.1 x 10^{6}
8,100,000

d. 1.9 x 10^{-3}
0.0019

e. -2x10^{2}
-200

f. 0.25 x 10^{3}
250

7. Evaluate the following:

a. 5×10^{-3}
0.005

c. 3^4
81

e. 1^5
1

b. $(64)^{1/2}$
8

d. 0.1^2
0.01

f. $\sqrt[3]{125}$
5

8. Solve $F = G\frac{m_1 m_2}{R^2}$ for R.

$F = \frac{Gm_1m_2}{R^2}$ → $R^2 = \frac{Gm_1m_2}{F}$ → $R = \sqrt{\frac{Gm_1m_2}{F}}$

9. If there are 5,250 feet in a mile and 3,600 seconds in an hour, convert

a. 60 miles per hour to feet per second

$\frac{60\,mi}{1\,hr} \times \frac{1\,hr}{3600\,sec} \times \frac{5280\,ft}{1\,mi} = 88\ ft/sec$

b. 40 feet per second to miles per hour

$\frac{40\,ft}{sec} \times \frac{3600\,sec}{1\,hr} \times \frac{1\,mi}{5280\,ft} = 27.3\ mi/hr$

10. Perform the following operations and express the results with the proper number of significant digits:

1.25639 + 2.1 =?

3.35639

= 3.4

5.3 x 4 = ?

= 21.2

= 2×10^1

Thank you for your effort.