MATH E-3: Assignment 2 - SOLUTIONS

Total possible points = 33

What set(s) of numbers do the following belong to (real, rational, irrational, integers, whole, natural). **Be sure to list all for full credit.**

1) $-1/5$ real, rational **2 points**

2) $\sqrt{3}$ real, irrational, **3 points**

3) π real, irrational **2 points**

4) -17 real, rational, integer **2 points**

5) Is -2/3 a natural number? Why or why not?

No, because it's not a counting number. **2 points**

6) Is 5/6 a rational number? Why or why not? **2 points**

Yes, it's the ratio of two integers, and it produces a repeating decimal, .0833333……

Simplify if possible. If not, tell why you cannot:

7. $\sqrt{36}$ 6 (-6 is also OK) **1 point**

8) $\sqrt[3]{-64}$ -4 **1 point**

9) $\sqrt[2]{-25}$ You can't do this in the real number system. The product of the same two real numbers can never be negative. **1 point**

10) $\sqrt[4]{625}$ 5 **1 point**

Calculate the following:

11) $-17 - (-9)$ $-17 + 9 = -8$ **1 point**

12) $-5 - 23$ $-5 + -23 = -28$ **1 point**

13) $\dfrac{(-6)\,(-4)\,(3)}{-8+-4}$ $\dfrac{24\text{x}3}{-12} = \dfrac{72}{-12} = -6$ **2 points**

14) $6 - 2(5\text{-}3)^2 + 21 \div 7 \times 4$
  $6 - 2(2)^2 + 21 \div 7 \times 4$
  $6 - 2(4) + 21 \div 7 \times 4$
  $6 - 8 + 21 \div 7 \times 4$
  $6 - 8 + 3 \times 4$
  $6 - 8 + 12$
  $\text{-}2 + 12$
  10 **2 points**

15) $(2015)^0 = 1$ **1 point**

16) $\text{-}48 + 63 = 15$ **1 point**

17) $(\text{-}8) \times 4(\text{-}5) \times (\text{-}3)$
  $\text{-}8 \times \text{-}20 \times \text{-}3$
  $160 \times \text{-}3$
  $\text{-}480$ **2 points**

18) $\dfrac{(\text{-}4) \times (\text{-}5) \times 6}{(\text{-}12) \times 4 \div 8}$ $= \dfrac{20 \times 6}{\text{-}48 \div 8}$ $= \dfrac{120}{\text{-}6}$ $= \text{-}20$ **2 points**

19) $(5 - 18) + 4(5 - 7)^2 + 24 \div 3 \times 2$
Work:
  $\text{-}13 + 4(\text{-}2)^2 + 24 \div 3 \times 2$
  $\text{-}13 + 4(4) + 24 \div 3 \times 2$
  $\text{-}13 + 16 + 24 \div 3 \times 2$
  $\text{-}13 + 16 + 8 \times 2$
  $\text{-}13 + 16 + 16$
  $3 + 16 = 19$ **3 points**

20) $|\text{-}25| = 25$ **1 point**