Things you already know from Math1010. :)

1. Evaluate/simplify these expressions and place the letter corresponding to teach one on the number line below. *(Place a dot on the number line and the letter above it, as shown in the example.)* Also, fill in the table telling the smallest set the number belongs to. Choose from these number sets: **R** = real numbers, **Q** = rational numbers, **I** = irrational numbers, **Z** = integers, **W** = whole numbers

Number to evaluate and plot:	Set:
A. $-\sqrt{2}$	
B. -2^2	
C. 5^0	
D. $\pi - 1$	
E. -0.3	
F. $0.\overline{3}$	
G. $\sqrt{7-3}$	
H. $\|3-6\|$	
I. $\dfrac{\|x\|}{x}$ if x is negative	
J. $\dfrac{\|x\|}{x}$ if x is positive	
K. Additive Identity	
L. Additive inverse of $\dfrac{3}{4}$	
M. Multiplicative Identity	
N. Multiplicative inverse of $\dfrac{3}{4}$	
O. $\dfrac{0}{4}$	
P. $\dfrac{4}{0}$	
Q. $\dfrac{0}{0}$	
R. $0.\overline{9}$	
Example-- S. $\dfrac{8}{2}$ = 4	**W**

S

--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--o--|--|--|--|--|
                  -1   0   1   2   3   4
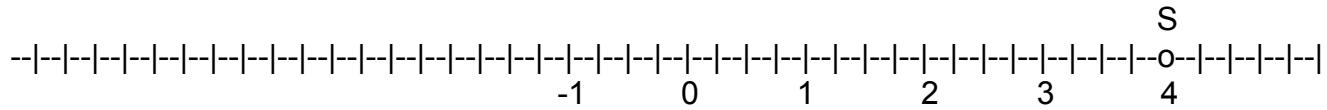
2. List all the integers in these intervals.

(a) (-3, 4]

(b) [1, 5]

(c) $(5, \infty)$

(d) (3, 4)

(e) $(-\infty, 1]$

3. Using $5x^3 - 2x + 4 = 0$, fill in an example of each of these questions, to practice your understanding of the vocabulary words. (For instance, if I asked for "degree," you'd say 3 is the degree.)

Vocabulary Word	Example
Equation	
Expression	
Term	
Factor	
Constant	
Coefficient	
Exponent	

4. Use the order of operations to evaluate these expressions.

(a) $3 \cdot 5 - 6 \div 4 + 2$

(b) $4 + 3 \cdot 2^3 \div 4 - 2$

(c) $\dfrac{2x^3 - x}{yz + y}$ if $x = -2, y = 3, z = -6$

5. Evaluate these power (exponent) expressions.

(a) $64^{\frac{2}{3}}$

(b) $64^{\frac{3}{2}}$

(c) $64^{\frac{-2}{3}}$

(d) $64^{\frac{-3}{2}}$

(e) $-64^{\frac{3}{2}}$

(f) $(-64)^{\frac{2}{3}}$

6. Simplify, by rationalizing the denominator.

(a) $\dfrac{5}{\sqrt{10}}$

(b) $\dfrac{3}{\sqrt{5}-2}$

(c) $\dfrac{\sqrt{2x^3}}{\sqrt{8x^6}}$

7. Simplify and write each expression with positive, rational exponents.

(a) $\dfrac{5^{\frac{-1}{2}}\left(5x^{\frac{5}{2}}\right)}{(5x)^{\frac{3}{2}}}$

(b) $\sqrt[3]{\sqrt{8x^3 y^6}}$

(c) $\dfrac{32 \cdot 8 \cdot 2^4}{64 \cdot 16 \cdot 2^{-3}}$ (Hint: Rewrite this as 2 to some power.)