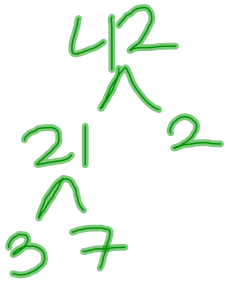
1. How many of the prime factors of 42 are greater than 3?

(A) Zero
(B) One
(C) Two
(D) Three
(E) Four



2. If m is a negative number, which of the following must be negative?

(A) 3-m
(B) m^2
(C) 3m+4
(D) m^3+m
(E) -5m

-1

a) $3-(-1)=4$
b) $(-1)^2=1$
c) $3(-1)+4=1$
d) $(-1)^3+-1=-2$
e) $-5(-1)=5$

-3
c) $3(-3)+4$
$-9+4=-5$

3. If p is an integer greater than 1 such that p divided by 4 yields a ~~remainder of 0~~ which of the following could be a prime number?

(A) p/4
(B) $\sqrt{p}$
(C) p/3
(D) p
(E) p+1/2

p is a multiple 4

$\frac{5}{4}=1\ r\ 1$

p= 8, 16, 24, 20, 4, 12 $\frac{16}{4}=4$
a) 2 b) 4 d) 8 c) 4

4. If P, Q, and R on the number line above represent consecutive odd integers, which of the following is not true?

(A) P+Q is an even integer = 12
(B) P+Q+R is an odd integer = 21
(C) R-P is an even integer = 4
(D) (P+Q)/2 is an even integer 12/2 = 6
(E) (P+R)/2 is an ~~odd~~ even integer

P = 5
Q = 7
R = 9

14/2 = 7

1, 3, 5 6/2 = 3

4. If S is the set of all numbers between -3.5 and 3.5 inclusive, T is the set of all prime numbers, and U is the set of all positive integers, then the intersection of S,T,and U contains how many elements?

(A) 0
(B) 1
(C) 2
(D) 3
(E) More than 3

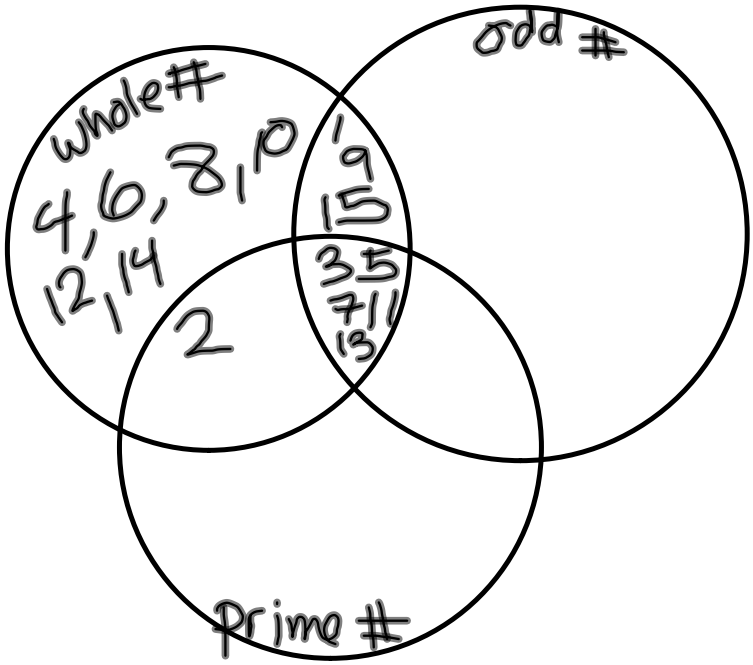
1, 2, 3 ← intersection of S & U

1 is not prime

6. If R contains 10 distinct even integers and set S contains 10 distinct negative integers, what is the maximum possible number of elements in the intersection of the two sets?

(A) 0
(B) 4
(C) 5
(D) 9
(E) 10

-2, -4, -6, -8, -10, -12
-14, -18, -20, -22


odd #
Whole #
4, 6, 8, 10
12, 14
2
1
9
15
35
7
11
13
Prime #