

## PROBLEM SET 3: PLUGGING IN THE ANSWER CHOICES

### Easy

1

If  $x$  is a positive integer, and  $x + 12 = x^2$ , what is the value of  $x$ ?

- A) 2
- B) 4
- C) 6
- D) 12

2



If twice the sum of three consecutive numbers is 12, and the two lowest numbers add up to 3, what is the highest number?

- A) 2
- B) 3
- C) 6
- D) 9

3



If  $2^x = 8^{(x-4)}$ , what is the value of  $x$ ?

- A) 4
- B) 6
- C) 8
- D) 64

### Medium

4

If Jane bought 3 equally priced shirts on sale, she would have 2 dollars left over. If instead she bought 10 equally priced pairs of socks, she would have 7 dollars left over. If the prices of both shirts and socks are integers, which of the following, in dollars, could be the amount that Jane has to spend?

- A) 28
- B) 32
- C) 47
- D) 57

5



During a vacation together, Bob spent twice as much as Josh, who spent four times as much as Ralph. If Bob and Ralph together spent \$180, how much did Josh spend?

- A) \$20
- B) \$80
- C) \$120
- D) \$160

6



Tina has half as many marbles as Louise. If Louise gave away 3 of her marbles and lost 2 more, she would have 1 more marble than Tina. How many marbles does Tina have?

- A) 3
- B) 5
- C) 6
- D) 7

7

In a bag of jellybeans,  $\frac{1}{3}$  are cherry and  $\frac{1}{4}$  are licorice. If the remaining 20 jellybeans are orange, how many jellybeans are in the bag?

- A) 16
- B) 32
- C) 36
- D) 48

## Hard

8

If the circumference of a circle is equal to twice its area, which of the following is equal to the area of this circle?

- A)  $\pi$
- B)  $2\pi$
- C)  $4\pi$
- D)  $16\pi$

9



If  $12y = x^3$ , and  $x$  and  $y$  are positive integers, what is the least possible value for  $y$ ?

- A) 6
- B) 18
- C) 144
- D) 216

10



If  $x^2$  is added to  $\frac{5}{4y}$ , the sum is  $\frac{5+y}{4y}$ . If  $y$  is a positive integer, which of the following is the value of  $x$ ?

- A)  $\frac{1}{4}$
- B)  $\frac{1}{2}$
- C)  $\frac{4}{5}$
- D) 1