

# Additional Basic Operations

1. What is the difference between 3.8 and 0.571?

0.73

2.567

3.229

4.262

2. 2.567 rounded to the nearest hundredth is:

2.6

3.0

2.56

2.57

3. Dividing a number by 2 is the same as multiplying that number by

2

1

$\frac{1}{4}$

$\frac{1}{2}$

4. Arrange the following numbers in order from the least to greatest 23, 42, 60, 9, 101.

23, 42, 60, 9, 101

60, 9, 101, 23, 42

101, 23, 60, 9, 42

60, 23, 9, 101, 42

9, 60, 101, 42, 23

5. If  $a = -6$  and  $b = 7$ , then  $4a(3b+5) + 2b = ?$

638

624

610

-610

-638

6. If one person consumes 8 glasses of water on a daily basis, how many glasses of water will 18 people consume?

26

64

128

144

7. A woman weighs 145 pounds. She gains 12 pounds one month and 6 pounds the next month. What is her new weight?

151 pounds

153 pounds

157 pounds

163 pounds

8. Expand the following expression:

$$(2x - 20)(5x + 10)$$

$$10x^2 - 80x - 200$$

$$70x - 200$$

$$10x^2 - 80x + 200$$

$$10x^2 - 120x - 200$$

9. For what real number  $x$  is it true that  $3(2x - 10) = x$  ?

-6

-5

5

6

30

10. Henry is three times as old as Truman. Two years ago, Henry was five times as old as Truman. How old is Henry now?

4

8

12

16

20

Answers and Explanations

1. C: The word "difference" signifies a subtraction problem. When subtracting decimals, align the decimals vertically. The result is 3.229, Choice C.

2. D: Look at the digit in the thousandths place. In this case it is a 7. Since the number is 5 or greater, round up the digit in the hundredths place. The correct answer is 2.57, Choice D.

3. D: Division is the opposite, or the reciprocal, of multiplication. If you divide a number by 2, you have to multiply it by  $\frac{1}{2}$  to get the same result.

4. D: When a number is raised to a power, it is multiplied by itself as many times as the power indicates. For example,  $2^3 = 2 * 2 * 2 = 8$ . A number raised to the power of 0 is always equal to 1, so 60 is the smallest number shown. Similarly, for the other numbers:  $9^0 = 9$ ;  $10^1 = 10$ ;  $4^2 = 4 * 4 = 16$ .

5. E:

Substitute the given values for the variables into the expression:

$$4a(3b+5) + 2b = 4 * -6(3 * 7 + 5) + 2 * 7$$

Using order of operations, compute the expression in the parentheses first.

Remember that you must first multiply 3 by 7 and then add 5 in order to follow order of operations:

$$= 4 * -6(21 + 5) + 2 * 7 \text{ Next, add the values in the parentheses.}$$

$$= 4 * -6(26) + 2 * 7 \text{ Simplify by multiplying the numbers outside the parenthesis.}$$

$$= -24(26) + 14 \text{ Multiply -24 by 26.}$$

$$= -624 + 14 \text{ Add.}$$

$$= -610$$

6. D: To find the total amount that will be consumed, multiply the number of glasses consumed by one person (8) by the number of people indicated in the question (18):  $8 * 18 = 144$ .

7. D: To calculate her new weight, add her weight increases (12 pounds and 6 pounds) to her original weight (145 pounds):  $145 \text{ pounds} + 12 \text{ pounds} + 6 \text{ pounds} = 163 \text{ pounds}$ .

8. A: Use the FOIL method (first, outside, inside, and last) to get rid of the parentheses:

$$(2x - 20)(5x + 10) = 2x(5x) + 2x(10) - 20(5x) - 20(10) = 10x^2 + 20x - 100x - 200.$$

Then, combine like terms to simplify the expression:

$$10x^2 - 80x - 200.$$

9. D: To solve  $3(2x - 10) = x$ , first multiply out the left side of the equation using distribution:  $6x - 30 = x$ . After subtracting  $x$  from both sides, we have  $5x - 30 = 0$ . Finally, adding 30 to both sides results in  $5x = 30$ , and therefore  $x = 6$ .

10. C: To solve this problem, first let  $h$  represent Henry's age and let  $t$  represent Truman's age. Since Henry is three times as old as Truman, then  $h = 3t$ . Note that two years ago, Henry's and Truman's ages would be  $h - 2$  and  $t - 2$ , respectively. Then, since Henry was five times as old as Truman two years ago, we have  $h - 2 = 5(t - 2)$ .

By substituting  $3t$  for  $h$ , we can solve the following equation:  $3t - 2 = 5(t - 2)$ .

$$3t - 2 = 5t - 10$$

$$8 = 2t$$

$$t = 4$$

So, Truman is 4 years old and Henry is three times Truman's age, or age 12, Choice C.