**SOLUTIONS**

1. Using order of operations,

**C. 98**

2. In the two minutes Gretel was making breadcrumbs, she made breadcrumbs, so now you must find how long it takes them working together to make 420 breadcrumbs. They make breadcrumbs a minute when working together, so minutes, but then add the two minutes Gretel was already working.

**B. 8**

3. North and south are opposite directions, and east and west are opposite directions, so you can subtract to find how far they went in each direction.

feet south

feet east

Now using the Pythagorean Theorem, you can find the distance from their original point.

, the square root of which is

**B.**

4. There are 5280 feet in one mile. Rearranging the formula we get ().

1. **40**

5. We can solve this by using the formula.

We know that the distance walked each way was 2 miles because , therefore the distance is 2. The rates are 12 and 6 as stated in the problem.

For the way there:

where is the time

For the way back:

where is the time

By solving for and , we get and respectively. By adding them together we get , however this is in hours. So by multiplying by 60, we get 30 minutes.

**D. 30**

6. Let us set the number of each kind of log as a variable.

**B.**

7. By definition of an irrational number, π and are the only irrational numbers from the list.

**A. 2**

8. Since they eat 2 slices of bread a day, they eat 14 slices of bread in one week.

, which gives us , which gives us .

So, that means that

, which gives us .

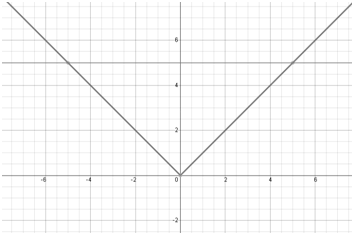
And since

,

, which is the same as .

**A. 1**

9.



The graph of these two equations results in a triangle with a height of 5 and a base of 10, so the area is .

**C.**

10. First we must find the slope of the line going through the points (5,12) and (-3,-4).

Then we plug it into point-slope form:

Then we must rearrange the equation to slope-intercept form.

**E. NOTA**

11. To find the shortest distance, reflect the point of the grandmother’s house over the equation of the stream. This gives you (0,-3). Now use the distance formula.

**C.**

12. A cube has 6 faces, so excluding the base, 5 faces are covered in candy.

pieces of candy cover the entire house, and ARE NOT peppermints, so are.

C.

13.

**D.**

14. factors to .

**B.**

15. Hansel eats 7 bites a minute, and he eats for 45 minutes. Gretel eats fifteen bites in two minutes and she eats for 42 minutes.

16. To solve this problem we can list out the different possibilities.

1. milk, pancakes, apples
2. milk, pancakes, nuts
3. milk, apples, nuts
4. pancakes, apples, nuts

**C. 4**

17. FOIL-ing gives you . The coefficient of the term is 53.

**B. 53**

18. Moving the variables that have negative exponents to the other side of the fraction bar, we get .

**A.**

19. Today is Tuesday. 52 days ago is three days more than seven weeks ago, so counting backwards we get Monday, Sunday, Saturday. Four days after that is (Sunday, Monday, Tuesday) Wednesday! Eight weeks later, it’s Wednesday.

**C. Wednesday**

20. First let’s put them in order. 20, 23, 24, **28**, 29, 33, 39

So the median is 28. What is the mean? Adding them up and dividing by the number of terms (seven) gives you 28. The median is NOT less than the mean, so Gretel is forced to live another week on sweets. (Eat your broccoli, children.)

**C. 28; no**

21. Prime factorize, and you will get. Take a pair of threes out because they make a square. We are left with .

**B.**

22. Add the exponents of each term.

­:

:

: (only count the exponents for the variables!)

**C. 20**

23.

Then find 60% of that.

Adding these gives .

**D. 88**

24. To find the roots, make the expression equal to zero. Subtracting two from both sides gives . The left side can be factored into , which equals zero. For it to equal zero, must be 4 or 1.

**C. 1, 4**

25. The change was from to , which is an example of the Commutative Property.

**D. Commutative Property**

26. This word expression translates to Simplifying this gives us 22.

**D. 22**

27. Since is 4, the dimensions of the oven mouth rectangle are 3 by 5, and the Hansel rectangle is 2 by 6. The Hansel rectangle is too long to fit inside the oven mouth rectangle, so the witch cannot shove him into the oven.

**B. No**

28. The equation y = has a maximum at x = . and , so the x = Substituting in, we get y = -0.5(1)2 + 1 + 1 = 1.5.

**D. 1.5**

29. He sells a third of in the morning, leaving of . of is , so he sells an additional in the afternoon, leaving = of . Then, in the evening, he sells of that , which is . All in all, he has sold of r. This means that the leftovers at the end of the day equal of r. , so . He made 60 licorice rolls that day, and had 6 left over, so he sold licorice rolls that day.

**E. 54**

30. Look for the bolded letters throughout the test. They spell the sentence, “How many primes are between one and ten?” There are four: 2, 3, 5, and 7.

**B. 4**