**1.**  **D**

**2.** 4 yards by 5 yards is equivalent to feet by feet. Perimeter is defined as 2(length + width). Therefore, the perimeter = feet. **D**

**3.** First, find the prime factorization of both numbers.  and. The least common multiple (LCM) is defined as the smallest number that both numbers (40 and 48) divide. You can find this by taking the highest power for each prime factor among the two numbers. Therefore, the LCM =. **D**

**4.** First arrange the numbers from smallest to largest.

62, 63, 63, 63, 64, 64, 65, 65, 68, 68

Since there is an even number of terms in the list (10), the **median** is the average of the two terms nearest the middle (in this case, the 5th and 6th terms). .

The **mode** is the number that occurs the most. 63 occurs in our list three times, which is the most for any number in our list. Therefore, 63 is the mode.

**Range** = largest number - smallest number =.

Median + mode + range = inches **A**

**5. **dollars **C**

**6.** Use Order of Operations (PEMDAS)!

=

. **D**

**7. **people are single.Therefore, 1,000,000-250,000=750,000 people are NOT single. Therefore, these people must have a partner. To find the number of couples, or pairs, divide 750,000 by 2 to get 375,000. **B**

**8.** The mixture starts off at  water. By adding one to each of the numerator and the denominator until we reach a fraction equivalent to 80%, , Jessie needs to add 5 ounces of water. **A**

**9.** After getting the fraction by multiplying the numerator and denominator by 100, keep dividing the numerator and denominator by 5 until no more factors of 5 remain.

 **C**

**10.** Set up ratios. ****. Cross multiply to get . Divide both sides by 64 to get polka-dots. **B**

**11. Brian** - broken pieces

**Daniel** - broken pieces

**Nick** - broken pieces

39>38>30 **C**

**12.** 240% MORE than 30 fireworks are displayed from 6 pm to midnight =

. Therefore, the TOTAL number of fireworks displayed = 30+102=132 **C**

**13. **inches, inches

inches cubed **B**

**14.** First, find the prime factorization of each of the numbers., , and . The greatest common factor (GCF) is defined as the largest number that is a common factor of 84, 112, and 154. You can find this by taking ONLY prime factors that are common to all three numbers and multiplying them together. Therefore, the GCF is . **D**

**15.** If you draw a picture, you will notice Justin is 4 miles due south of his house. **D**

**16. **percent increase **E**

**17.** . . x=108. **B**

**18.** =. **E**

**19.** Every two minutes, Katherine runs 6 units to the right and 4 units up. In four minutes, she will double this. So, (5 + 12, 5 + 8) = (17, 13). **B**

**20.** 5☺6=. **A**

**21.** Allison has 5 choices for a shirt, 2 choices for pants, and 2 choices for a scarf (scarf or no scarf; the scarf is optional). The total number of combinations of outfits =. **D**

**22.** **Floor area** = feet squared

**Wall area** = feet squared since there are four walls

**Total area needed to be cleaned** = 144 + 480 = 624 feet squared **C**

**23. **. . . . Now plug into the original equation,  to get . The question is essentially asking you to find y when a=10 and b=15. . **C**

**24. Store 1** - dollars

**Store 2** - dollars

**Store 3** - First find the price of the toy after the first discount. dollars.

Now take an additional 10% off: dollars (FINAL)

17<17.5<18.9

Store 2gives the lowest price after discounts. **B**

**25.** According to the Pythagorean Theorem, . Therefore, . . **E**

**26.** The slope of the line Ax+By=C where A, B, and C are relatively prime integers and A 0 is equal to . Using this definition, the slope of is . The slope perpendicular to is equal to the negative reciprocal of . Therefore, is the slope perpendicular to the given line. Using , check the answer choices to see which line has a slope of .  has a slope of . **C**

**27.** Plug in answer choices and check to see if the inequality is satisfied.

 Yes!

 Yes!

 Yes!

 NO **D**

**28.** Farrah can bake 1 cake in 20 minutes. Therefore, she can bake 3 cakes in 60 minutes. Laurie can bake 1 cake in 30 minutes. Therefore, she can bake 2 cakes in 60 minutes. Together, they can bake 3+2=5 cakes in 60 minutes. Therefore, they can bake 1 cake in minutes. **B**

**29.** $1 - 37 red envelopes

$5 - 18 red envelopes

$10 - 4x red envelopes

$20 - x red envelopes

Set up an equation. You know that there are 100 red envelopes total. 37+18+4x+x=100. 55+4x+x=100. 55+5x=100. 5x=45. x=9. The probability of getting a red envelope with $20 ==. **B**

**30.** Because there are 7 days in a week, the next Saturday will fall in 7 days.December 21 is Saturday. December 28 is Saturday. December 31 is Tuesday. January 1 is Wednesday. **C**