5^{th} Grade Test

Raider Math Challenge

April 20, 2013

1. Evaluate. $(-4+(6+(-4)))+(7-(-5))$

A. 8 B. 10 C. 12 D. 14

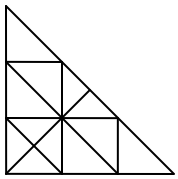
2. Sam was walking in a field when he fell down a hole. He slid 10 feet in 2 seconds. On average, how fast did he fall?

A. $5\ ft/sec$ B. $\frac{1}{5}\ ft/sec$ C. $4\ ft/sec$ D. $\frac{1}{4}\ ft/sec$

3. In triangle *ABC*, the difference in degrees between $\angle A$ and $\angle B$ is the same as the difference between $\angle B$ and $\angle C$. If $\angle A = 47°$, and $\angle A \neq \angle C$ what is the measure of $\angle C$?

A. 47° B. 60° C. 73° D. 84°

4. How many triangles are in the figure to the right?



A. 27 B. 26 C. 25 D. 23

5. 15% of 40% of 800 is the same as 20% of 30% of what number?

A. 400 B. 800 C. 600 D. 1200

6. Mr. Kunin's wedding is on May 26, 2013. If today is April 20, 2013, in how many days is Mr. Kunin's wedding?

A. 36 B. 37 C. 67 D. 6

7. A speed of 36 miles per hour is the same as how many feet per second?

A. 0.6 B. 36 C. 52.8 D. 190,080

8. Suppose $x(2y)(3z) = 2$. Find z if $x = \frac{1}{2}$ and $y = \frac{2}{3}$.

A. 6 B. 4 C. 2 D. 1

9. A certain machine shop buys used toasters for $5 each and used microwaves for $12 each. They refurbish and sell them as follows: They sell toaster-microwave sets for $25 each until they run out of sets. Then if they have toasters left over, they sell them for $9 each. If they have microwaves left over they sell them for $15 each. One month, the shop bought 100 used toasters and 120 used microwaves. Assuming they were able to sell all of the items, what was their profit?

A. $220 B. $760 C. $860 D. $2800

10. Seven Jolly Ranchers, each a different color, must be arranged in a row. In how many different ways can this be done?

A. 24 B. 28 C. 720 D. 5040

11. Jack Sprat could eat no fat. He ate a certain number of grams of protein for breakfast and twice as many grams of protein for lunch. He ate three times as many grams of protein for dinner as he did for lunch. In all, he ate 576 grams of protein. How many grams of protein did he have for lunch?

A. 192 B. 64 C. 128 D. 288

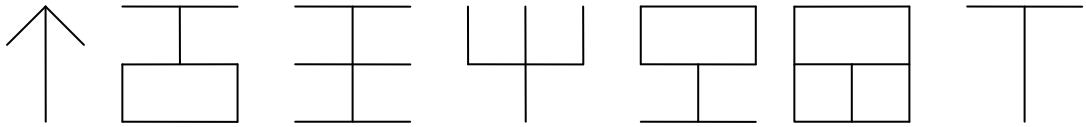
12. Solve for x. $2x + 7 = 9x$

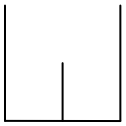
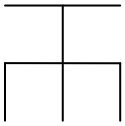
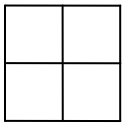
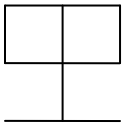
A. -1 B. 1 C. $\frac{7}{11}$ D. $\frac{11}{7}$

13. Tootsie Roll Pops cost 35¢ each. Jim can eat a Tootsie Roll Pop in 6 minutes. How much would Jim need to spend on Tootsie Roll Pops in order to be able to eat the purchased Pops nonstop for two full hours?

A. $7.00 B. $4.20 C. $3.50 D. $2.10

14. What symbol comes next in the following sequence?



A.  B.  C.  D. 

15. Fluffy was born at 7:25 a.m. on March 2, 2000. Bluffy was born at 7:25 p.m. on September 2, 2000. How many hours older than Bluffy is Fluffy?

A. 4428 B. 4416 C. 986 D. 184

16. Solve for x. $6! + 5! + x = 864$

A. 4 B. 24 C. 828 D. 853

17. Junat can do 48 math problems in one hour, while Ninuk can do 75 in an hour. In three hours, how many more problems can Ninuk do than Junat?

A. 81 B. 144 C. 225 D. 369

18. How many digits will be used to number the pages of a 234-page book?

A. 234 B. 465 C. 594 D. 702

19. What is the smaller angle formed by the minute- and hour-hands of a clock at 6:30?

A. 45° B. 0° C. 165° D. 15°

20. The Ato Zoo has the following animals: 3 aardvarks, a baboon, a cheetah, a dingo, 4 elephants, a ferret, a gazelle, a hedgehog, 2 iguanas, a jaguar, a kangaroo, a lungfish, a muskrat, a newt, 4 ostriches, a porcupine, a quail, a rhinoceros, a shark, a toucan, 2 umbrellabirds, a vulture, a walrus, an x-ray tetra, a yak, and a zorilla. What is the ratio of the number of animals whose common names start with a vowel to the number of animals whose common names start with a consonant?

A. 3:5 B. 5:7 C. 5:21 D. 3:10

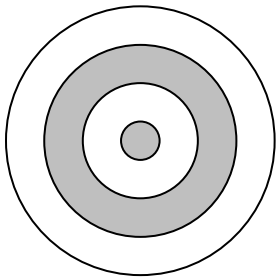
21. Find the sum of the next three terms in the following sequence:
1, 20, 4, 23, 7, 26, 10, 29, 13, 32, … .

A. 70 B. 61 C. 51 D. 35

22. If two standard six-sided dice are rolled, what is the probability that the product of the two numbers showing will be between 9 and 26?

A. $\frac{7}{12}$ B. $\frac{1}{2}$ C. $\frac{2}{3}$ D. $\frac{4}{9}$

23. The diagram to the right depicts 4 concentric circles whose radii form an arithmetic sequence. The radius of the largest circle is 7, while the radius of the smallest is 1. Find the area of the shaded region.



A. 17π B. 25π C. 26π D. 50π

24. Bill is older than Cindy by five years. Jerry is younger than Bill by 9 years. Sarah's age is the average of the ages of Cindy and Jerry. Sarah's twin, Frank, is 12. How old is Bill?

A. 12 B. 14 C. 15 D. 19

25. Sanjna, Brooke, and Nisha are in 6^{th} grade. Ming, Simon, Priya, and John are in fifth grade. In how many ways can these students line up in a row if Priya and Nisha are the only two who are willing to stand next to someone from a different grade?

A. 24 B. 28 C. 720 D. 5040

TB1. In the multiplication problem below, A and B stand for different digits. What is the sum of A and B?

$$\begin{array}{r} AB \\ \times BA \\ \hline 114 \\ 304 \\ \hline 3154 \end{array}$$

TB2. Suppose you have a two-pan balance. (It tells you which side is heavier or if the two sides are equal.) You are given 8 coins that look identical, but you know that one of them is counterfeit and lighter than the others. The others are identical in weight. You can weigh any number of coins on either side of the balance in a single weighing. What is the smallest number of weighings you need in order to determine which coin is counterfeit?

TB3. How many zeros are at the end of 2013! ?