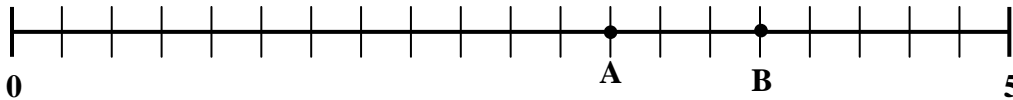


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1. 142 minutes after 11:00 am is how many minutes before 2:00 pm?
A. 18 B. 22 C. 32 D. 38 E. 78
2. Even the cast members of the musical *Rent* know that the number of minutes in the year 2006 is:
A. 525,600 B. 527,000 C. 824,200 D. 1,224,000 E. 31,536,000
3. Doug bought three T-shirts at \$8.90 each and a pair of jeans for \$18.50. After paying 5% sales tax, how much change does Doug get from a \$50 bill?
A. \$1.90 B. \$2.54 C. \$2.92 D. \$3.50 E. \$3.62

4. $\frac{27}{45} = \frac{A}{5} = \frac{9}{B} = \frac{60}{C}$ What does $A+B+C$ equal?
A. 28 B. 54 C. 82 D. 88 E. 118

5. A number line from 0 to 5 is divided into 20 equal parts.
What is the sum of the numbers located at points A and B?



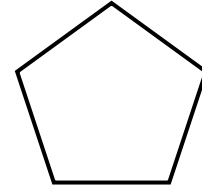
- A. 6 B. 6.25 C. 6.5 D. 6.75 E. 7
6. In this sequence of eight numbers, the difference between consecutive numbers doubles each time.
5; 8; 14; 26; A; _____; _____; B

Compute $B \div A$.

- A. 1.95 B. 2.44 C. 4.26 D. 6.78 E. 7.72
7. 247 is the product of two prime numbers.
What is the positive difference between these two prime numbers?
A. 2 B. 4 C. 6 D. 8 E. 10
8. What is the sum of all positive multiples of 5 less than 99?
A. 850 B. 900 C. 950 D. 1000 E. 1050
9. “*Twin primes*” are a pair of prime numbers that differ by 2.
How many pairs of twin primes are between 10 and 50?
A. 1 B. 2 C. 3 D. 4 E. 5

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10. When every vertex of a regular pentagon is connected to every other vertex, a smaller pentagon and N non-overlapping triangles are formed. What is N?



A. 5 B. 8 C. 10 D. 12 E. 15

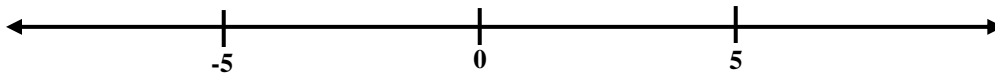
11. The perimeter of a rectangle is 120 cm. The length of one side is 18 cm. What is the area of this rectangle?

A. 756 cm² B. 810 cm² C. 900 cm² D. 918 cm² E. 1512 cm²

12. The United States debt is increasing at the rate of \$12,716 per second. In the 75 minutes that you have to take this math contest, how much will the US debt increase?

A. \$57,222 B. \$95,370 C. \$953,700 D. \$9,537,000 E. \$57,222,000

13. On a number line marked with 1 cm units, an ant crawls at a constant speed of 4 cm per minute. Starting at “5”, Aunt Antie walks left for 2 minutes; right for 6 minutes, and then left for 3 minutes. Where is Aunt Antie on the number line?



A. -1 B. 1 C. 4 D. 5 E. 9

14. Determine both the least common multiple of 12 and 15 and the greatest common factor of 12 and 15. What is their sum?

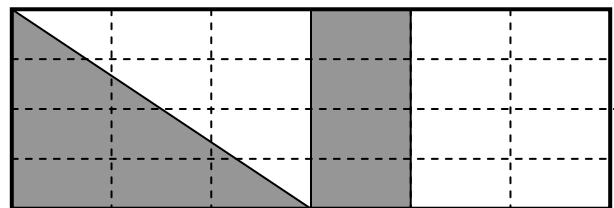
A. 61 B. 63 C. 121 D. 123 E. 183

15. Which one of these five numbers is the greatest?

A. $\frac{1}{15} \div \frac{1}{18}$ B. $\frac{1}{18} \div \frac{1}{15}$ C. $\frac{1}{18} * \frac{1}{15}$ D. $\frac{1}{18} + \frac{1}{15}$ E. $\frac{1}{15} - \frac{1}{18}$

16. What fraction of this rectangle is shaded?

A. 1/5 B. 3/8 C. 5/12
D. 5/6 E. 7/12



- 17.

City	A	B	C	D	E
1990	12,500	8,100	84,600	32,200	54,000
2006	18,500	11,300	115,000	39,900	78,000

The 1990 and 2006 populations of five cities are given in the table. Which city had the largest percent increase in population during this time period?

A. A B. B C. C D. D E. E

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18. On a Friday drive from St. Louis to Chicago, Aaron shares the driving with a friend. Before lunch, Aaron drove $\frac{1}{3}$ of the 180 miles covered. After lunch, Aaron drove $\frac{1}{4}$ of the 120 miles they had left. What fraction of the day's trip did Aaron drive?

A. $\frac{3}{10}$ B. $\frac{2}{7}$ C. $\frac{7}{12}$ D. $\frac{1}{2}$ E. $\frac{2}{5}$

19. Rutherford B. Hayes was elected President of the United States in a leap year in the 19th Century. The sum of the digits in that year is 22. What is the tens' digit of that year?

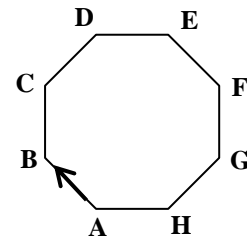
A. 5 B. 6 C. 7 D. 8 E. 9

20. England and the United States have always agreed that "*one million = 1,000,000*". Until recently, the English defined a billion to be a million million. What is the ratio between the former English billion and the current US billion?

A. 1 B. 10 C. 100 D. 1000 E. 1,000,000

21. On this regular octagon, a snail starts at A and crawls clockwise along the edges. Where is the snail when it has completed $\frac{2}{3}$ of the distance around the octagon?

A. Between E and F B. Point F C. Between F and G
D. Point G E. None of these



22. A 2 m deep 20 m by 12 m rectangular pool is filled with water. When all of this water is transferred into a 16 m by 16 m pool, how deep is the water?

A. 1.6 m B. 1.75 m C. 1.875 m D. 2 m E. 2.25 m

23. If today is Saturday, what day of the week will it be 2^7 days from now?

A. Saturday B. Sunday C. Monday D. Tuesday E. Wednesday

24. In basketball, a player can score via 3-point shots, 2-point field goals, or 1-point free throws. If Tonya makes seven 2-point field goals while scoring 34 points, what is the minimum number of free throws that she has made?

A. 0 B. 1 C. 2 D. 3 E. 4

25. On a day in June, sunrise is 6:00 am and sunset is 9:00 pm. At what time of that day is the number of hours past sunrise equal to twice the number of hours before sunset?

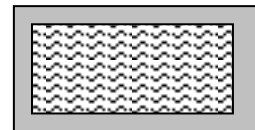
A. 11:00 am B. 12:00 noon C. 1:30 pm D. 2:30 pm E. 4:00 pm

26. Cheryl ran a 10 kilometer race in exactly 51 minutes. To the nearest tenth, what was her average speed in miles per hour? (Use: 1 mile = 1.61 km)

A. 7.3 mph B. 7.6 mph C. 8.1 mph D. 8.4 mph E. 19.0 mph

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27. Two standard 6-sided dice are rolled. What is the probability that the sum is 10, 11, or 12?
A. $1/6$ B. $3/11$ C. $1/4$ D. $1/12$ E. $3/8$
28. 8,000,000 is the product of two whole numbers, neither whole number contains the digit "0". What is the positive difference between the two whole numbers?
A. 15,113 B. 25,550 C. 94,200 D. 106,117 E. 999,992
29. 37 divided by N leaves a remainder of 7. For how many different whole numbers N is this true?
A. 0 B. 1 C. 2 D. 3 E. 6
30. Emily, Sarah, and Andrea share a bowl of strawberries. First, Emily ate $1/3$ of them. Then Sarah ate $1/3$ of the remaining strawberries. Andrea ate the last 8 strawberries. How many strawberries did Emily eat?
A. 6 B. 8 C. 12 D. 24 E. 48
31. Martha purchases 240 feet of fence for enclosing her rectangular garden. Her plan called for the width to be 40 feet. However, her neighbor Mrs. Euler convinced her to make the width 60 feet. Using the same 240 feet of fence, how many square feet larger is the rectangular garden Mrs. Euler suggested compared to the one Martha had planned?
A. 0 ft^2 B. 240 ft^2 C. 400 ft^2 D. 600 ft^2 E. 2800 ft^2
32. Select any twenty consecutive three-digit whole numbers. Divide each of them by 20 and record each remainder. What is the sum of the twenty remainders?
A. 180 B. 190 C. 200 D. 205 E. 210
33. For the team she coaches, Brenda buys sodas at \$0.75 each and hamburgers at \$1.20 each. If she buys more hamburgers than sodas, buys at least one soda, and spends a total of \$21.60 on sodas and hamburgers, what is the total number of hamburgers and sodas she buys?
A. 21 B. 22 C. 23 D. 24 E. 25
34. A 15-foot by 32-foot rectangular pool is surrounded by a 3-foot wide walkway so that the pool and walkway make a larger rectangle. How many 6-inch by 6-inch square tiles are required to pave this walkway?
A. 318 B. 636 C. 954 D. 1024 E. 1272



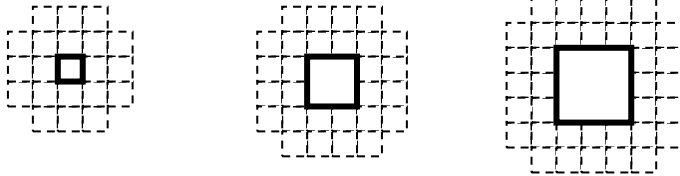
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35. B and C are distinct digits in the 6-digit number N: $N = 1B3,45C$.
If N is divisible by 15, how many different numbers could N be?

A. 3 B. 4 C. 5 D. 6 E. 7

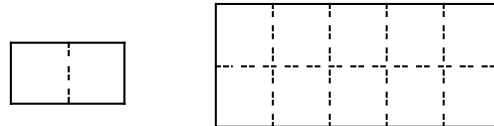
36. Unit squares (shown below) are used to build each pattern. The first three patterns are shown. Not including the square hole, how many unit squares are needed to build the 20th pattern in this sequence?

A. 140 B. 144 C. 164 D. 172 E. 176



37. In how many distinct ways can five 1 by 2 tiles be used to cover a 2 by 5 rectangle?

A. 5 B. 6 C. 8 D. 9 E. 13



38. Fill each of the twelve blank cells with one digit, 0 through 9.
The letters A, B, C, and D each represent a 2-digit or 3-digit number from the corresponding row.
For example, A is the horizontal 3-digit number beginning in cell AE and B is the 2-digit horizontal number beginning in cell BG. Similarly, E, F, G, and H each represent a 2-digit or 3-digit number from the corresponding column.
None of these eight 2-digit or 3-digit numbers begins with the digit "0".

CLUES: E = 5F D = 8H
E = A + 91 A = 4B

What is the sum of all twelve digits that you use?

A. 48 B. 49 C. 50
D. 51 E. 52

	E	F	G	H
A				
B				
C				
D				

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39. Gene and Anne have one coin and continue to flip it until one of them wins this game. Gene wins if the sequence “Head-Head” appears before the sequence “Tail-Head”. Anne wins if the sequence “Tail-Head” appears before the sequence “Head-Head”. What is Anne’s probability of winning this game?

A. $1/4$ B. $1/3$ C. $1/2$ D. $2/3$ E. $3/4$

40.

On this grid of streets, each block is square and bicyclists must stay on the streets. Therefore, the distance (the length of a shortest path) between points P and Q is $8+4 = 12$ blocks, not the length of the segment $PQ = \sqrt{64+16} = \sqrt{80}$ blocks.

Pauline at P and Quincy at Q agree to meet at any intersection T such that the shortest distance from P to T is 6 blocks and the shortest distance from Q to T is also 6 blocks. How many different intersections are possible meeting points?

- A. 0 B. 2 C. 4
D. 5 E. More than 5

