1989 AMC 8

Time limit: 40 minutes

Typeset by: LIVE by Po-Shen Loh
https://live.poshenloh.com/past-contests/amc8/1989

1. What is the value of

$$(1+11+21+31+41)+(9+19+29+39+49)?$$

A 150

B 199

C 200

D 249

E 250

2. What is the value of

$$\frac{2}{10} + \frac{4}{100} + \frac{6}{1000}?$$

A $.012$

B $.0246$

C $.12$

D $.246$

E 246

3. Which of the following numbers is the largest?

A $.99$

B $.9099$

C $.9$

D $.909$

E $.9009$

4. Estimate to determine which of the following is closest to

$$\frac{401}{.205}.$$

A $.2$

B 2

C 20

D 200

E 2000

5. What is the value of

$$-15 + 9 \times (6 \div 3)?$$

A -48

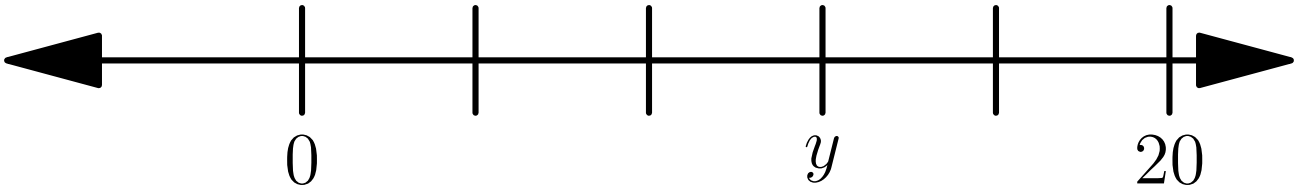
B -12

C -3

D 3

E 12

6. If the markings on the number line shown are equally spaced, what is the number y?



A 3

B 10

C 12

D 15

E 16

7. The value of 20 quarters and 10 dimes equals the value of 10 quarters and n dimes. What is n?

A 10

B 20

C 30

D 35

E 45

8. What is the value of

$$(2 \times 3 \times 4)\left(\frac{1}{2}+\frac{1}{3}+\frac{1}{4}\right)?$$

A 1

B 3

C 9

D 24

E 26

9. There are 2 boys for every 3 girls in Ms. Johnson's math class. If there are 30 students in her class, what percent of them are boys?

A 12%

B 20%

C 40%

D 60%

E $66\frac{2}{3}\%$

10. How many degrees are in the smaller angle between the hour hand and the minute hand of a clock that reads seven o'clock?

A 50°

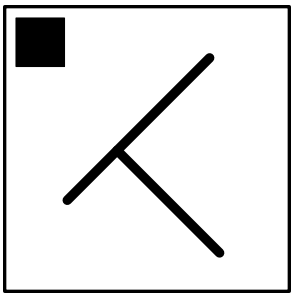
B 120°

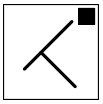
C 135°

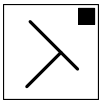
D 150°

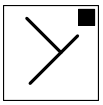
E 165°

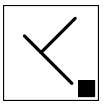
11. Which of the five "T-like shapes" would be symmetric to the one shown with respect to the dashed line?

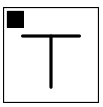


A 

B 

C 

D 

E 

12. What is the value of

$$\frac{1-\frac{1}{3}}{1-\frac{1}{2}}?$$

A $\frac{1}{3}$

B $\frac{2}{3}$

C $\frac{3}{4}$

D $\frac{3}{2}$

E $\frac{4}{3}$

13. Which of the following is equal to

$$\frac{9}{7 \times 53}?$$

A $\dfrac{.9}{.7 \times 53}$

B $\dfrac{.9}{.7 \times .53}$

C $\dfrac{.9}{.7 \times 5.3}$

D $\dfrac{.9}{7 \times .53}$

E $\dfrac{.09}{.07 \times .53}$

14. Each of the digits $2, 4, 5, 6, 9$ is placed in exactly one box of the subtraction problem shown, in which a two-digit number is subtracted from a three-digit number. What is the smallest difference that is possible?

A 58

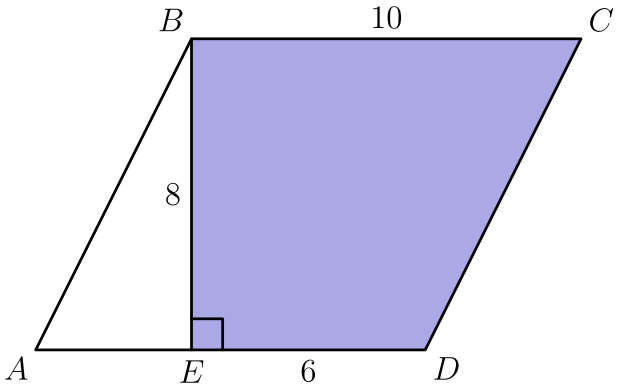
B 123

C 149

D 171

E 176

15. In parallelogram $ABCD$ shown, what is the area of the shaded region $BEDC$?



A 24

B 48

C 60

D 64

E 80

16. In how many ways can 47 be written as the sum of two primes?

A 0

B 1

C 2

D 3

E more than 3

17. The number N is between 9 and 17. Which of the following could be the average of $6, 10,$ and N?

A 8

B 10

C 12

D 14

E 16

18. A calculator has a reciprocal key that replaces the number currently displayed with its reciprocal. For example, if the display shows 4 and the key is pressed, the display becomes $.25$. If 32 is currently displayed, what is the fewest number of times the reciprocal key must be pressed so that the display again reads 32?

A 1

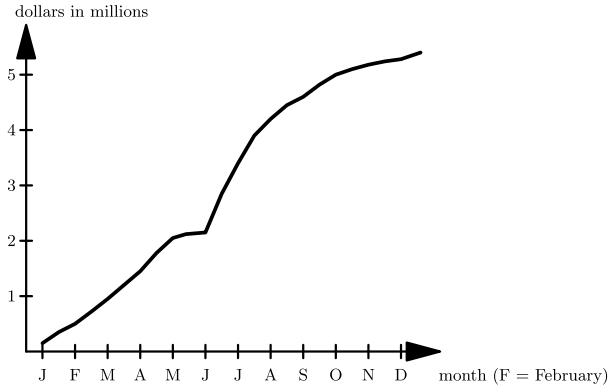
B 2

C 3

D 4

E 5

19. The graph below shows the total accumulated dollars (in millions) spent by the Surf City government during 1988. For example, about $.5$ million had been spent by the beginning of February and approximately 2 million by the end of April. Approximately how many millions of dollars were spent during the summer months of June, July, and August?



A 1.5

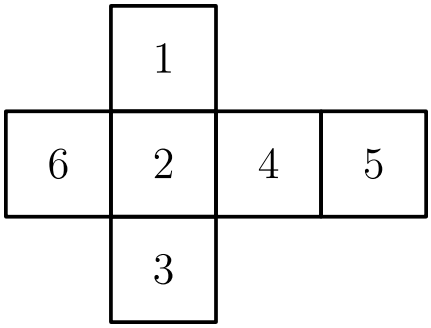
B 2.5

C 3.5

D 4.5

E 5.5

20. The figure shown may be folded along the lines to form a number cube. Three faces come together at each corner of the cube. What is the largest sum of three numbers whose faces come together at a corner?



A 11

B 12

C 13

D 14

E 15

21. Jack had a bag of 128 apples. He sold 25% of them to Jill. Next he sold 25% of those remaining to June. Of those apples still in his bag, he gave the shiniest one to his teacher. How many apples did Jack have then?

A 7

B 63

C 65

D 71

E 111

22. The letters A, J, H, S, M, E and the digits $1, 9, 8, 9$ are each cycled separately (shifted one place at a time) to build a numbered list. Starting from AJHSME 1989, the list begins: line 1 is JHSMEA 9891, line 2 is HSMEAJ 8919, line 3 is SMEAJH 9198, and so on. On what numbered line will AJHSME 1989 appear for the first time?

A 6

B 10

C 12

D 18

E 24

23. An artist stacks 14 cubes, each with edges of 1 meter, into a staircase: a 3×3 block of 9 cubes rests on the ground, a 2×2 block of 4 cubes sits on top of it flush into one back corner, and a single cube sits on top of that at the same corner. She paints the entire exposed surface of the sculpture, meaning every face except those resting on the ground. How many square meters does she paint?

A 21

B 24

C 33

D 37

E 42

24. A square piece of paper is folded in half. The folded paper is then cut in half by a straight cut parallel to the fold. This forms three rectangles: one large rectangle and two small ones. What is the ratio of the perimeter of one of the small rectangles to the perimeter of the large rectangle?

A $\frac{1}{2}$

B $\frac{2}{3}$

C $\frac{3}{4}$

D $\frac{4}{5}$

E $\frac{5}{6}$

25. Two wheels are spun, and each wheel's pointer selects one number. The first wheel is divided into four equal regions numbered 3, 4, 5, and 8; the second wheel is divided into three equal regions numbered 6, 7, and 9. What is the probability that the sum of the two selected numbers is even?

A $\frac{1}{6}$

B $\frac{3}{7}$

C $\frac{1}{2}$

D $\frac{2}{3}$

E $\frac{5}{7}$

Solutions: https://live.poshenloh.com/past-contests/amc8/1989/solutions