RATIOS, RATES, AND PROPORTIONS FOR AMC 8: PRACTICE SET

ANDY JO

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1. Problems

Beginner.

1. (2012 AMC 8, Problem #1) Rachelle uses 3 pounds of meat to make 8 hamburgers for her family. How many pounds of meat does she need to make 24 hamburgers for a neighborhood picnic?

(A) 6 **(B)** $6\frac{2}{3}$ **(C)** $7\frac{1}{2}$ **(D)** 8 **(E)** 9

2. (2021 AMC 10A, Problem #2) Portia's high school has 3 times as many students as Lara's high school. The two high schools have a total of 2600 students. How many students does Portia's high school have?

(A) 600 **(B)** 650 **(C)** 1950 **(D)** 2000 **(E)** 2050

3. (2022 AMC 10A, Problem #2) Mike cycled 15 laps in 57 minutes. Assume he cycled at a constant speed throughout. Approximately how many laps did he complete in the first 27 minutes?

(A) 5 **(B)** 7 **(C)** 9 **(D)** 11 **(E)** 13

4. (1986 AJHSME, Problem #1) In July 1861, 366 inches of rain fell in Cherrapunji, India. What was the average rainfall in inches per hour during that month?

(A) $\frac{366}{31 \times 24}$ **(B)** $\frac{366 \times 31}{24}$ **(C)** $\frac{366 \times 24}{31}$ **(D)** $\frac{31 \times 24}{366}$ **(E)** $366 \times 31 \times 24$

5. (2023 AMC 8, Problem #5) A lake contains 250 trout, along with a variety of other fish. When a marine biologist catches and releases a sample of 180 fish from the lake, 30 are identified as trout. Assume that the ratio of trout to the total number of fish is the same in both the sample and the lake. How many fish are there in the lake?

(A) 1250 **(B)** 1500 **(C)** 1750 **(D)** 1800 **(E)** 2000

Intermediate.

6. (2019 AMC 10B, Problem #1) Alicia had two containers. The first was $\frac{5}{6}$ full of water and the second was empty. She poured all the water from the first container into the second container, at which point the second container was $\frac{3}{4}$ full of water. What is the ratio of the volume of the smaller container to the volume of the larger container?

(A) $\frac{5}{8}$ **(B)** $\frac{4}{5}$ **(C)** $\frac{7}{8}$ **(D)** $\frac{9}{10}$ **(E)** $\frac{11}{12}$

7. (2020 AMC 10B, Problem #3) The ratio of w to x is $4:3$, the ratio of y to z is $3:2$, and the ratio of z to x is $1:6$. What is the ratio of w to y?

(A) $4:3$ **(B)** $3:2$ **(C)** $8:3$ **(D)** $4:1$ **(E)** $16:3$

8. (2014 AMC 10A, Problem #6) Suppose that a cows give b gallons of milk in c days. At this rate, how many gallons of milk will d cows give in e days?

(A) $\frac{bde}{ac}$ **(B)** $\frac{ac}{bde}$ **(C)** $\frac{abde}{c}$ **(D)** $\frac{bcde}{a}$ **(E)** $\frac{abc}{de}$

9. (2021 AMC 10A, Problem #3) The sum of two natural numbers is 17,402. One of the two numbers is divisible by 10. If the units digit of that number is erased, the other number is obtained. What is the difference of these two numbers?

(A) 10,272 **(B)** 11,700 **(C)** 13,362 **(D)** 14,238 **(E)** 15,426

10. (2020 AMC 10A, Problem #4) A driver travels for 2 hours at 60 miles per hour, during which her car gets 30 miles per gallon of gasoline. She is paid \$0.50 per mile, and her only expense is gasoline at \$2.00 per gallon. What is her net rate of pay, in dollars per hour, after this expense?

(A) 20 **(B)** 22 **(C)** 24 **(D)** 25 **(E)** 26

Advanced.

11. (2004 AMC 10B, Problem #7) On a trip from the United States to Canada, Isabella took d U.S. dollars. At the border she exchanged them all, receiving 10 Canadian dollars for every 7 U.S. dollars. After spending 60 Canadian dollars, she had d Canadian dollars left. What is the sum of the digits of d?

(A) 5 **(B)** 6 **(C)** 7 **(D)** 8 **(E)** 9

12. (2019 AMC 10B, Problem #11) Two jars each contain the same number of marbles, and every marble is either blue or green. In Jar 1 the ratio of blue to green marbles is $9 : 1$, and the ratio of blue to green marbles in Jar 2 is $8 : 1$. There are 95 green marbles in all. How many more blue marbles are in Jar 1 than in Jar 2?

(A) 5 **(B)** 10 **(C)** 25 **(D)** 45 **(E)** 50

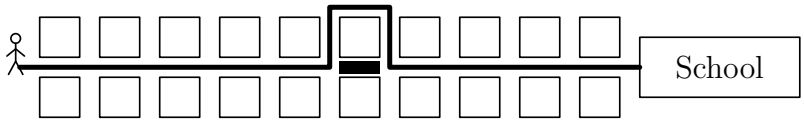
13. (1985 AHSME, Problem #4) A large bag of coins contains pennies, dimes and quarters. There are twice as many dimes as pennies and three times as many quarters as dimes. An amount of money which could be in the bag is

(A) \$306 **(B)** \$333 **(C)** \$342 **(D)** \$348 **(E)** \$360

14. (2015 AMC 8, Problem #17) Jeremy's father drives him to school in rush hour traffic in 20 minutes. One day there is no traffic, so his father can drive him 18 miles per hour faster and gets him to school in 12 minutes. How far in miles is it to school?

(A) 4 **(B)** 6 **(C)** 8 **(D)** 9 **(E)** 12

15. (2023 AMC 8, Problem #15) Viswam walks half a mile to get to school each day. His route consists of 10 city blocks of equal length and he takes one minute to walk each block. Today, after walking 5 blocks, Viswam discovers that he has to make a detour, walking 3 blocks of equal length instead of 1 block to reach the next corner. From the time he starts his detour, at what speed, in miles per hour, must Viswam walk in order to arrive at school at his usual time?



(A) 4 **(B)** 4.2 **(C)** 4.5 **(D)** 4.8 **(E)** 5

2. Answer Key

Problem	Letter	Value
1	E	9
2	C	1950
3	B	7
4	A	$\frac{366}{31\times24}$
5	B	1500
6	D	$\frac{9}{10}$
7	E	16 : 3
8	A	$\frac{bde}{ac}$
9	D	14,238
10	E	26
11	A	5
12	A	5
13	C	$342
14	D	9
15	B	4.2