AMC 8 Problem Set (Regular Level)

The Ivy League Education Center

1. The value of $1000 + 200 - 10 + 1$ is

(A) 1191 **(B)** 1190 **(C)** 1189 **(D)** 1209 **(E)** 1211

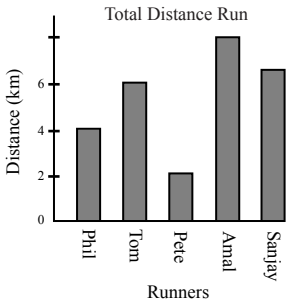
2. What time is it 45 minutes after 10:20?

(A) 11:00 **(B)** 9:35 **(C)** 11:15 **(D)** 10:55 **(E)** 11:05

3. Which of the following is closest to 5 cm?

(A) The length of a full size school bus
(B) The height of a picnic table
(C) The height of an elephant
(D) The length of your foot
(E) The length of your thumb

4. The graph shows the total distance that each of five runners ran during a one-hour training session. Which runner ran the median distance?



(A) Phil **(B)** Tom **(C)** Pete
(D) Amal **(E)** Sanjay

5. If $x + 3 = 10$, what is the value of $5x + 15$?

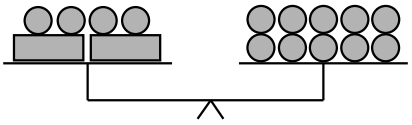
(A) 110 **(B)** 35 **(C)** 80 **(D)** 27 **(E)** 50

6. A rectangle has a perimeter of 42 and a width of 4. What is its length?

(A) 19 **(B)** 17 **(C)** 34
(D) 21 **(E)** 38

7. The equal-arm scale shown is balanced.
One ▭ has the same mass as

(A) ○○
(B) ○○○
(C) ○○○○
(D) ○○○○○
(E) ○○○○○○



8. At the beginning of the summer, Aidan was 160 cm tall. At the end of the summer, he measured his height again and discovered that it had increased by 5%. Measured in cm, what was his height at the end of summer?

(A) 168 **(B)** 165 **(C)** 160.8 **(D)** 172 **(E)** 170

9. If $x = 4$ and $y = 2$, which of the following expressions gives the smallest value?

(A) $x + y$ **(B)** xy **(C)** $x - y$ **(D)** $x \div y$ **(E)** $y \div x$

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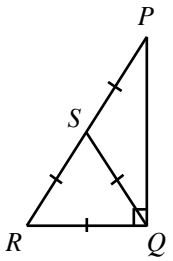
10. The circumference of a circle is 100π cm. What is the radius of the circle?

(A) 20 cm **(B)** 100 cm **(C)** 50 cm **(D)** 25 cm **(E)** 10 cm

11. In the diagram, $\triangle PQR$ is right-angled. Point S lies on PR so that $\triangle QRS$ is equilateral and $\triangle PQS$ is isosceles with $PS = QS$. The measure of $\angle QPR$ is

(A) 35° **(B)** 37.5° **(C)** 25°
(D) 32.5° **(E)** 30°



12. Operations are placed in each ◯ so that $3 \bigcirc 5 \bigcirc 7 \bigcirc 9 = 78$. Listed from left to right, the operations are

(A) $+, \times, +$ **(B)** $+, +, \times$ **(C)** $\times, \times, -$ **(D)** $\times, \times, +$ **(E)** $\times, +, \times$

13. Ahmed chooses two different items for a snack. His choices are an apple, an orange, a banana, and a granola bar. How many different pairs of snacks could he choose?

(A) 3 **(B)** 4 **(C)** 5 **(D)** 6 **(E)** 7

14. One soccer ball and one soccer shirt together cost \$100. Two soccer balls and three soccer shirts together cost \$262. What is the cost of one soccer ball?

(A) \$38 **(B)** \$50 **(C)** \$87.30 **(D)** \$45 **(E)** \$40

15. A map has a scale of 1 : 600 000. On the map, the distance between Gausstown and Piville is 2 cm. What is the actual distance between the towns?

(A) 12 km **(B)** 1.2 km **(C)** 120 km **(D)** 1200 km **(E)** 12 000 km

16. The mean (average) of a set of six numbers is 10. If the number 25 is removed from the set, the mean of the remaining numbers is

(A) 6 **(B)** 7 **(C)** 8 **(D)** 9 **(E)** 10

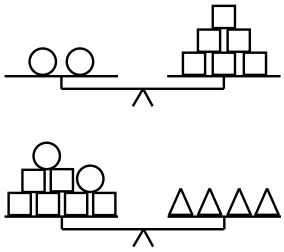
17. How many positive integers between 10 and 2016 are divisible by 3 and have all of their digits the same?

(A) 9 **(B)** 12 **(C)** 6 **(D)** 18 **(E)** 3

18. Joe filled up his car's gas tank. After travelling 165 km, $\frac{3}{8}$ of the gas in the tank was used. At this rate, approximately how much farther can the car travel before its fuel tank is completely empty?

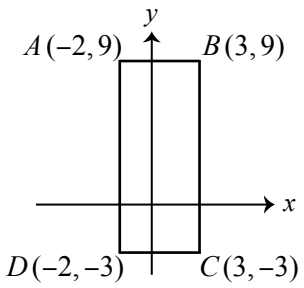
(A) 99 km **(B)** 440 km **(C)** 605 km **(D)** 264 km **(E)** 275 km

19. The two scales shown are balanced. Which of the following is not true?



(A) ○ = △
(B) △△ = ○□□□
(C) ○ = □□□
(D) ○△ = □□□□
(E) △ = □□□

20. In the diagram, what is the length of BD?

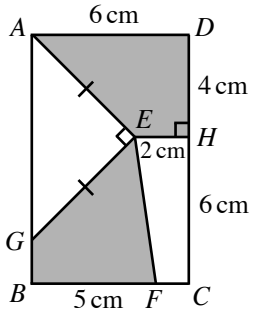


(A) 13 **(B)** 17 **(C)** $\sqrt{205}$
(D) $\sqrt{160}$ **(E)** 15

21. Two 5-digit positive integers are formed using each of the digits from 0 through 9 once. What is the smallest possible positive difference between the two integers?

(A) 469 **(B)** 269 **(C)** 247 **(D)** 229 **(E)** 249

22. In rectangle $ABCD$, what is the total area of the shaded region?



(A) 25 cm^2 **(B)** 31 cm^2 **(C)** 39 cm^2
(D) 35 cm^2 **(E)** 41 cm^2

23. Zeus starts at the origin $(0, 0)$ and can make repeated moves of one unit either up, down, left or right, but cannot make a move in the same direction twice in a row. For example, he cannot move from $(0, 0)$ to $(1, 0)$ to $(2, 0)$. What is the smallest number of moves that he can make to get to the point $(1056, 1007)$?

(A) 2112 **(B)** 2161 **(C)** 2063 **(D)** 2111 **(E)** 2113

24. What is the tens digit of 3^{2016}?

(A) 0 **(B)** 2 **(C)** 4 **(D)** 6 **(E)** 8

25. In the table, the numbers in each row form an arithmetic sequence when read from left to right. Similarly, the numbers in each column form an arithmetic sequence when read from top to bottom. What is the sum of the digits of the value of x?

(An *arithmetic sequence* is a sequence in which each term after the first is obtained from the previous term by adding a constant. For example, $3, 5, 7, 9$ are the first four terms of an arithmetic sequence.)

				18
	43			
		40		
x			26	

(A) 5 **(B)** 2 **(C)** 10

(D) 7 **(E)** 13