



GMAT

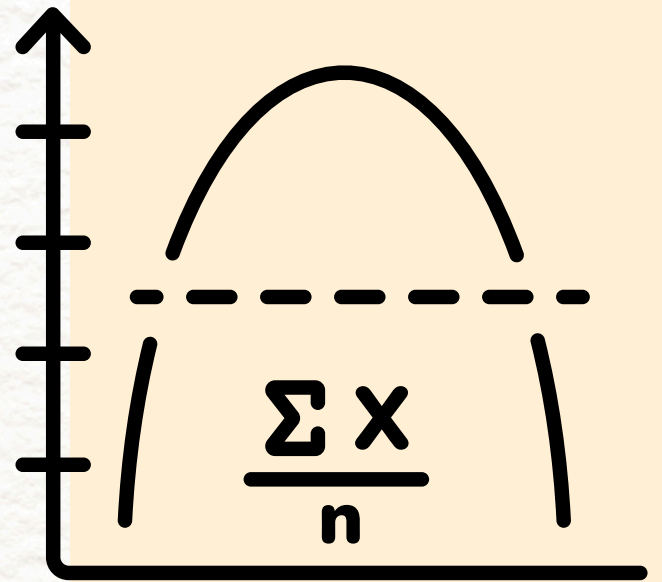
AVERAGES AND ROUNDING

PRACTICE QUESTIONS

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**GMAT
AVERAGES AND
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1. The average of six numbers is 4. If the average of two of those numbers is 2, what is the average of the other four numbers?

- 1.5
- 2.6
- 3.7
- 4.8
- 5.9

2. Kate got a 56 on her first math test. On her second math test, she raised her grade by 12%. What was her grade?

- 1.62.7
- 2.67.2
- 3.68.0
- 4.72.3

3. A skyscraper is 548 meters high. The building's owners decide to increase its height by 3%. How high would the skyscraper be after the increase?

- 1.551 meters
- 2.555 meters
- 3.562 meters
- 4.564 meters

4. Janet makes homemade dolls. Currently, she produces 23 dolls per month. If she increased her production by 18%, how many dolls would Janet produce each month?

- 1.27
- 2.32
- 3.38
- 4.40

5. A class contains an equal number of boys and girls. The average height of the boys is 62 inches. The average height of the all the students is 60 inches. What is the average height of the girls in the class?

- 1.57 inches
- 2.58 inches
- 3.59 inches
- 4.60 inches

GMAT
AVERAGES AND
ROUNDING

6. Elijah drove 45 miles to his job in an hour and ten minutes in the morning. On the way home in the evening, however, traffic was much heavier and the same trip took an hour and a half. What was his average speed in miles per hour for the round trip?

- 1. 30
- 2. 45
- 3. $33\frac{3}{4}$
- 4. $32\frac{1}{2}$

7. If Joey and Katrina hike an average of 3 miles per hour, about how long will it take them hike both the Beaverton Falls trail (7.25 miles) and the Copper Creek trail (4.75 miles)?

- 1. 3 hours
- 2. 3.5 hours
- 3. 4 hours
- 4. 4.5 hours

8. A pasta salad was chilled in the refrigerator at 35°F overnight for 9 hours. The temperature of the pasta dish dropped from 86°F to 38°F . What was the average rate of cooling per hour?

- 1. $(4.8^{\circ})/\text{hr}$
- 2. $(5.3^{\circ})/\text{hr}$
- 3. $(5.15^{\circ})/\text{hr}$
- 4. $(0.532^{\circ})/\text{hr}$

9. Rachel spent \$24.15 on vegetables. She bought 2 lbs of onions, 3 lbs of carrots, and $1\frac{1}{2}$ lbs of mushrooms. If the onions cost \$3.69 per lb, and the carrots cost \$ 4.29 per lb, what is the price per lb of mushrooms?

- 1. \$2.60
- 2. \$2.25
- 3. \$2.80
- 4. \$3.10
- 5. \$2.75

10. A roast was cooked at 325°F in the oven for 4 hours. The internal temperature rose from 32°F to 145°F . What was the average rise in temperature per hour?

- 1. $20.2^{\circ}\text{F}/\text{hr}$
- 2. $28.25^{\circ}\text{F}/\text{hr}$
- 3. $32.03^{\circ}\text{F}/\text{hr}$
- 4. $37^{\circ}\text{F}/\text{hr}$

Answers & Explanations

1. A

A set of six numbers with an average of 4 must have a collective sum of 24. The two numbers that average 2 will add up to 4, so the remaining numbers must add up to 20. The average of these four numbers can be calculated: $20/4 = 5$.

2. A

First, calculate 12% of 56.

$$56 \times 0.12 = 6.72$$

Then, add this value (the increase) to the original value of 56.

$$56 + 6.72 = 62.72$$

Rounding off, we get 62.7

3. D

Explanation: First, calculate 3% of 548 meters.

$$548 \text{ meters} \times 0.03 = 16.44 \text{ meters.}$$

Then, add it to the original height.

$$548 \text{ meters} + 16.44 \text{ meters} = 564.44 \text{ meters}$$

Rounding off, we get 564 meters.

4. A

Explanation: First, calculate 18% of 23.

$$23 \times 0.18 = 4.14$$

Then, add this value (the increase) to the original value of 23.

$$23 + 4.14 = 27.14$$

Rounding off, we get 27.

5. B

The average, or arithmetic mean, is computed by totaling all the measurements and dividing by the number of measurements. Let TB represent the sum of the heights of the boys in the class, and TG the sum of the heights of the girls. If N is the number of students in the class, there are $N/2$ boys and $N/2$ girls. The average height of the boys is then $TB/(N/2) = 2TB/N = 62$. Similarly, the average height of the girls is $2TG/N$. The average height of all the students is equal to $(TB + TG)/N = TB/N + TG/N = 60$. Therefore, $TG/N = 60 - TB/N = 60 - 31 = 29$, and the average height for the girls is $2 \times 29 = 58$.

**GMAT
AVERAGES AND
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6. C

To determine this, first determine the total distance of the round trip. This is twice the 45 miles of the one-way trip to work in the morning, or 90 miles. Then, to determine the total amount of time Elijah spent on the round trip, first convert his travel times into minutes. One hour and ten minutes equals 70 minutes, and an hour and a half equals 90 minutes. So, Elijah's total travel time was $70 + 90 = 160$ minutes. Elijah's average speed can now be determined in miles per minute:

Speed = $90 \text{ miles} / 160 \text{ min} = 0.5625 \text{ miles per minute}$

Finally, to convert this average speed to miles per hour, multiply by 60, since there are 60 minutes in an hour:

Average speed (mph) = $60 \times 0.5625 = 33.75 \text{ miles per hour}$

7. C

The total distance they will hike is $7.25 \text{ miles} + 4.75 \text{ miles} = 12 \text{ miles}$. If they hike 3 miles per hour, it will take them 4 hours to hike 12 miles.

8. B

The average rate of cooling is: $(86^{\circ} - 38^{\circ}) / 9 \text{ hrs}$; $48^{\circ} / 9 = 5.33^{\circ}\text{F per hour}$.

9. A

Begin by determining the total cost of the onions and carrots, since these prices are given. This will equal $(2 \times \$3.69) + (3 \times \$4.29) = \$20.25$. Next, this sum is subtracted from the total cost of the vegetables to determine the cost of the mushrooms: $\$24.15 - \$20.25 = \$3.90$. Finally, the cost of the mushrooms is divided by the quantity (lbs) to determine the cost per pound:

Cost per lb = $\$3.0 / 1.5 = \2.60

10. B

$145^{\circ}\text{F} - 32^{\circ}\text{F} = 113^{\circ}\text{F}$, $113^{\circ}\text{F} \div 4 \text{ hrs} = 28.25^{\circ}\text{F/ hr}$