

PERCENT, PROPORTION, AND RATE PROBLEMS ON TAKS

Below are examples of percent, proportion, and rate problems in multiple choice format. Try solving the problems before looking at the solutions. (Cover the solutions with a piece of paper.) Then check your solutions against the ones given.

1. Dave is baking chocolate chip cookies and sets the oven to 350°F. The oven temperature starts at room temperature, 68°F, and takes 8 minutes to reach 350°F. What is the average rate of change in the temperature?

A -36.5°F per minute
B -35.25°F per minute
C 35.25°F per minute
D 52.25°F per minute

Solution

$$\begin{aligned}\text{Average rate of change} &= \frac{\text{Change in temperature}}{\text{Change in time}} \\ &= \frac{350^{\circ}\text{F} - 68^{\circ}\text{F}}{8 \text{ min}} = \frac{282^{\circ}\text{F}}{8 \text{ min}} \\ &= 35.25^{\circ}\text{F per minute}\end{aligned}$$

The correct answer is C.

(A) **(B)** **(C)** **(D)**

2. This year, the total number of freshmen entering a high school is 784 students. Last year, the total number of freshmen was 700 students. What is the percent change in the number of freshmen entering the high school?

F -12%
G -10.7%
H 10.7%
J 12%

Solution

$$\begin{aligned}\text{Percent change} &= \frac{\text{Students this year} - \text{Students last year}}{\text{Students last year}} \\ &= \frac{784 - 700}{700} = \frac{84}{700} \\ &= 0.12 = 12\%\end{aligned}$$

The correct answer is J.

(F) **(G)** **(H)** **(J)**

3. During yesterday's workout, Diana ran 4 miles in 34 minutes. If she maintains the same pace during today's workout, how long will it take her to run 6 miles?

A 23 min
B 48 min
C 51 min
D 54 min

Solution

Write and solve a proportion, where t is the time it will take Diana to run 6 miles.

$$\frac{4 \text{ miles}}{34 \text{ minutes}} = \frac{6 \text{ miles}}{t \text{ minutes}}$$

$$4t = 34 \cdot 6$$

$$t = \frac{34 \cdot 6}{4} = 51 \text{ minutes}$$

The correct answer is C.

(A) **(B)** **(C)** **(D)**