

Interpreting Linear Functions Answers and Explanations

Answer Key:

1. A 2. A 3. C 4. B 5. A 6. C 7. A 8. D 9. D

Answer Explanations:

1. **A.** In this problem, we are given the equation $P=250+39.99m$ and asked to determine the best interpretation of the number 250. In our equation we know that our increasing rate, slope, is 39.99 which corresponds with the monthly payment. Moreover, there is an additional payment of 250 dollars that is a static value and must be paid only once. Thus, the 250 dollars represents the initial price to acquire the fridge.
2. **A.** Here we are asked to interpret what the linear function represents. The equation reads
$$A = 3T + 35.4$$
From this equation we can say that when the temperature is 0 degrees, the estimated attendance is 35.4 students. When the temperature raises by one degree, our estimated attendance increases by 3 students. Therefore, the estimated increase in students per degree is 3 students, which corresponds to answer (A).
3. **C.** In this problem, we are given the equation $W=1,000+3,500h$ and asked to determine the best interpretation for the value 3,500. Knowing that the equation represents the total cost incurred by the government and our h -variable represents time, we know that 3,500 must deal with the cost per hour. Given this information we know that the government has hired a group of workers to improve the quality of an exit ramp and must pay the group of workers an amount that corresponds to the amount of time spent working. Thus, the 3,500 represents each additional hour of working on the exit ramp.
4. **B.** We are told that the final grade is increased by 0.5 points per extra credit question answered correctly. Likewise, in the equation, $0.5q$ is being added to the 88. Thus, 88 must be Steve's score before adding the extra credit.
5. **A.** The ride-sharing company's model, $y=2.99+1.50x$, reads that regardless of the number of miles travelled there is a flat fee of \$2.99 to receive a ride. Furthermore, for every mile traveled during the ride there is an additional charge of \$1.50. Recall that the y -intercept is determined when the x -value is equal to zero. Therefore, to determine our y -intercept we set our x equal to zero giving us
$$y=2.99+1.50(0) \rightarrow y=2.99$$
, which means that the y -intercept represents a flat fee of \$2.99 making Answer Choice (A) correct.
6. **C.** When $d=0$, James has worked 0 days that week. In other words, 24 is the number of transmissions left before James has started work for the week. Answer choice (A) is incorrect because James will complete the repairs when $T=0$. Since $T=24-12d$, this will occur when $0=24-12d$ or when $d=\frac{108}{23}$, not when $d=24$. Therefore, the value 24 in the equation does not represent the number of days it will take James to complete the repairs. Answer choice (B) and (D) are incorrect because the number 12 in $T=24-12d$ indicates that the number of phones left will decrease by 12 for each increase in the value of d by 1; in other word. That James is repairing phone at a rate of 12 per day, not 24 per hour (Choice B) or 24 per day (Choice D).
7. **A.** We can rewrite the given equation in point-slope form $V-V_0=m(s-s_0)$. In this equation, (s_0, V_0) is a point on the line and m is the slope. Knowing that the car had initially stopped means that the $V_0=0$. Giving the equation $V=m(s-s_0)$ now by factoring out a -1 from the right side we get $V=7(13-s)$ from this we can conclude that the seven represents a change in 7 meters per second every second because

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it represents the slope of the function. Therefore, Answer Choice (A) is correct.

8. **D.** We can rewrite the given equation in slope-intercept form $y = mx + b \rightarrow C = 75m + 475$. In this equation, 75 is the slope of C with respect to m and 475 is the C -intercept. Recall that the slope of a function represents a rate of change meaning that the cost of having the ATM will increase by 75 dollars for each additional month of use after the initial cost of 475. Therefore, answer choice (D) is correct.
9. **D.** In this problem, we are given the equation $25s + 32.8p = 100$ and asked to find the volume of 1 ounce of soda at room temperature in millimeters. We are given the information that the bottle contains 100 milliliters of a solution of soda; therefore, we know that the coefficients of our variables represent the number of milliliters in an ounce of the respective item. Knowing this information, we can say that there are 25 milliliters of soda per ounce of soda.