A1
Unit 1

Key



Question #1

If 18 more than 3 times a number is −27, what is the number?

A) −15

B) −3

C) 3

D) 15

A

Question #2

The length of a rectangular flowerbed is 5 feet more than the width. If the area of the flowerbed is 300 square feet, what is the length, in feet?

A) 10

B) 15

C) 20

D) 30

C

Question #3

The area of a rectangle is 84 square meters. The length of the rectangle is 5 meters longer than the width. What is the length, in meters, of the rectangle?

A) 4

B) 7

C) 12

D) 21

C

Question #4

Which equation shows that "three less than twice the sum of a number, $x$, and seven is four"?

A) $2(x+7)+3=4$

B) $2(x+7)-3=4$

C) $2(x-3)+7=4$

D) $(3-2x)+7=4$

B





Question #5

Solving the interest formula, $I=prt$, for the variable $t$ will result in which equation?

A) $t=Ipr$

B) $t=\frac{I}{pr}$

C) $t=I-pr$

D) $t=\frac{I}{p}r$

NA B

Question #6

The equation $P=2l+2w$ is used to find $P$, the perimeter of a rectangle, using the length ($l$) and the width ($w$) of the rectangle. What is an equivalent equation solved for $w$?

A) $w=P-2l$

B) $w=\frac{P}{2}-2l$

C) $w=\frac{P-2l}{2}$

D) $w=2(P-2l)$

C

Question #7

The formula for the volume of a cone is $V=\frac{1}{3}\pi r^2 h$. Which equation correctly describes the height, $h$?

A) $h=\frac{3V}{\pi r^2}$

B) $h=V-\frac{1}{3}\pi r^2$

C) $h=\frac{V}{3\pi r^2}$

D) $h=\frac{1}{3}V\pi r^2$

A

Question #8

Which equation is equivalent to $-3(x+2)=-2(2x-3)$?

A) $-3x+2=-4x-3$

B) $-3x-6=-4x+6$

C) $-3x+2=-4x+3$

D) $-3x-6=-4x-6$

B

Question #9

Which equation is equivalent to $5(x+3)+10x+25(2x)=340$?

A) $42x+3=340$

B) $42x+15=340$

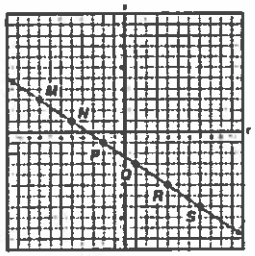
C) $65x+3=340$

D) $65x+15=340$

D

Question #10

The graph of a line is shown below.




Which pair of points lie on $\overrightarrow{QN}$?

A) $(4,-5)$ and $(7,-7)$

B) $(4,-5)$ and $(1,-3)$

C) $(-2,-1)$ and $(3,-8)$

D) $(-2,-1)$ and $(-8,3)$

D





Question #11

Deluxe Cleaners charges \$20 to dry clean a tuxedo. They pay an employee \$8 per hour to clean tuxedos and use \$4 worth of dry cleaning fluid on each tuxedo. The profit for this service can be determined using the equation below.

$$p = x[20 - (4 + 8h)]$$

$p$ = profit, in dollars
$h$ = number of hours employee is paid
$x$ = number of tuxedos cleaned

Which expression shows the amount of profit earned when 15 tuxedos are dry-cleaned?

A) $16 - 8h$

B) $24 - 8h$

C) $240 - 8h$

D) $240 - 120h$

D

Question #12

Kelsie works at a concert arena. When the price of a ticket is \$30, a concert will be attended by 2,500 people. Each time the price is raised by an increment of \$5, there will be 100 fewer people at the concert. Kelsie uses the equation $R = (30 + 5n)(2500 - 100n)$ to determine $R$, the total concert revenue in dollars when there have been $n$ \$5 increases in ticket price. Which conclusion is valid?

A) The total concert revenue decreases when the price of a ticket is greater than \$30.

B) The number of people attending the concert is represented by $2500 - 100n$.

C) The number of times the price is raised is represented by $30 + 5n$.

D) The cost per concert ticket must be less than \$55.

A B

Question #13

The expression $2T + 3F + 4M + 10E$ gives the number of points a student earns on a test when the student correctly answers $T$ true-false questions, $F$ fill-in-the-blank questions, $M$ multiple-choice questions, and $E$ extended-response questions. Which statement is NOT true?

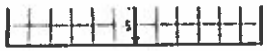
A) The coefficient 2 indicates that each correct true-false question earns 2 points.

B) The coefficient 3 represents the points earned for each fill-in-the-blank question.

C) The term $10E$ represents the total number of points earned from 10 extended-response questions.

D) The term $4M$ represents the total number of points earned from $M$ multiple-choice questions worth 4 points per question.

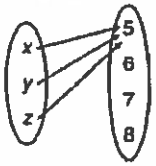
C



Question #17

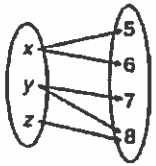
**Which mapping is a function?**

A)

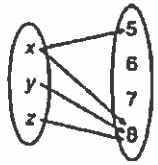



A

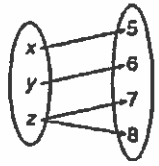
B)




C)




D)








Question #18

**The table shows values of $n$ and $f(n)$ for the equation $f(n) = \frac{n(n+3)}{2}$.**

| $n$ | $f(n)$ |
|---|---|
| 1 | 2 |
| 2 | 5 |
| 3 | 9 |
| 4 | 7 |

**What is the value of $f(n)$ when $n = 4$?**

A) 12

B) 13

C) 14

D) 28

C

Question #19

**If $f(x) = 2x^2 - x$, what is $f(-6)$?**

A) −78

B) −30

C) 18

D) 78

D

Question #20

**The stopping distance of a car can be approximated using the formula $d = 0.05v^2 + 2v$, where $d$ = the stopping distance in feet and $v$ = the speed of the car in miles per hour. What is the approximate stopping distance of a car going 55 miles per hour?**

A) 110

B) 150

C) 260

D) 300

C

Question #14

**Each set of ordered pairs represents a function. Which set of ordered pairs would represent a function if the values of the *x*-coordinates and the values of the *y*-coordinates were reversed?**

A) {(1, 1), (2, 1), (3, 1), (4, 1)}

B) {(1, 2), (2, 2), (3, 3), (4, 3)}

C) {(1, 4), (2, 3), (3, 1), (4, 3)}

D) {(1, 2), (2, 3), (3, 4), (4, 5)}

Question #15

**Which set of ordered pairs represents a function?**

A) {(3, 2), (4, 4), (6, 3), (4, 5)}

B) {(4, −3), (4, −1), (4, 3), (4, 6)}

C) {(−4, 4), (−2, 4), (1, 4), (5, 4)}

D) {(−3, −3), (−2, −4), (−2, −1), (−1, −5)}

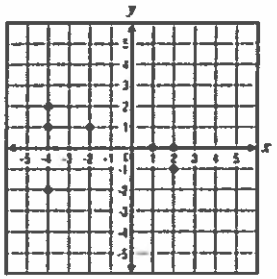




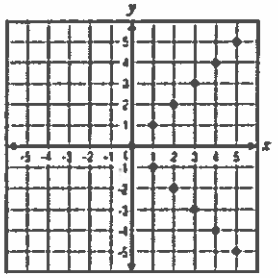
Question #16

**Which relation graphed below is a function?**

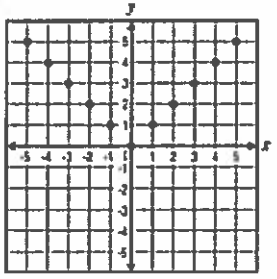
A)



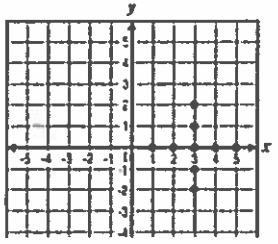
B)



C)



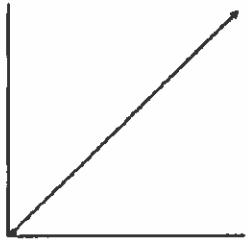
D)



Question #21

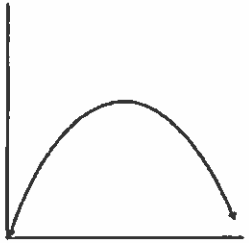
**When a football is punted, it goes up and then comes down. Which graph BEST represents the distance between the football and the ground over time?**

A)

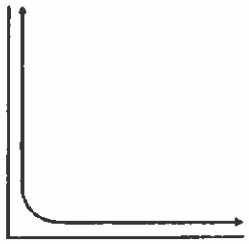


B

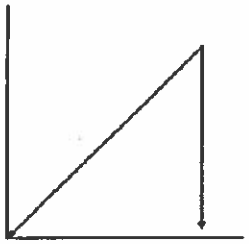
B)



C)



D)



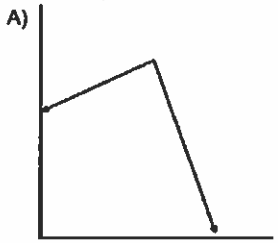




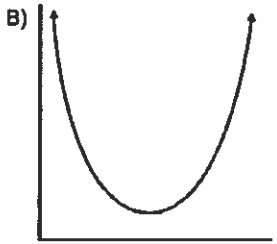
Question #22

**As a cup of coffee sits on the counter, the temperature of the coffee cools to room temperature. Which of the following graphs BEST represents the relationship between how long the coffee has been sitting and the temperature of the coffee?**

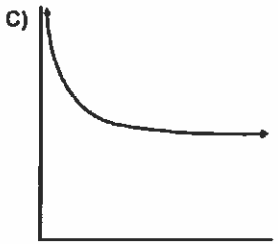
A)



B)

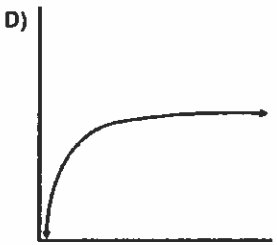


C)



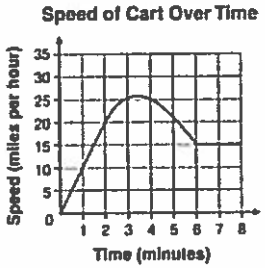
C

D)



Question #23

The graph shows the speed of a cart over a period of several minutes.




At approximately what time did the speed of the cart begin to decrease?

A) 3.0 minutes

B) 3.5 minutes

C) 6.0 minutes

D) 8.0 minutes

B