NO Calculator
SLOPE THEORY

1 BASIC INTERPRETATION 7

$x + y = 75$

The equation above relates the number of minutes, x, Maria spends running each day and the number of minutes, y, she spends biking each day. In the equation, what does the number 75 represent?

A) The number of minutes spent running each day
B) The number of minutes spent biking each day
C) The total number of minutes spent running and biking each day
D) The number of minutes spent biking for each minute spent running

A. LABEL & MATCH
$x + y = 75$
$R + B = 75$
B. SIMPLE INTERPRETATION MATCH

6 SLOPE INTERPRETATION 1

$h = 3a + 28.6$

A pediatrician uses the model above to estimate the height h of a boy, in inches, in terms of the boy's age a, in years, between the ages of 2 and 5. Based on the model, what is the estimated increase, in inches, of a boy's height each year?

A) 3
B) 5.7
C) 9.5
D) 14.3

A. LABEL & MATCH
$H = 3a + 28.6$
$y = 3x + 28.6$
$y = mx + b$
GOES UP m EVERY YEAR

1 SLOPE INTERPRETATION 6

Salim wants to purchase tickets from a vendor to watch a tennis match. The vendor charges a one-time service fee for processing the purchase of the tickets. The equation $T = 15n + 12$ represents the total amount T, in dollars, Salim will pay for n tickets. What does 12 represent in the equation?

A) The price of one ticket, in dollars
B) The amount of the service fee, in dollars
C) The total amount, in dollars, Salim will pay for one ticket
D) The total amount, in dollars, Salim will pay for any number of tickets

A. LABEL & MATCH
$T = 15N + 12$
$y = 15x + 12$
$y = mx + b$
$\$ = \$x + \$$
b = y-INTERCEPT
B. P.O.E.

8 SLOPE INTERPRETATION 5

In air, the speed of sound S, in meters per second, is a linear function of the air temperature T, in degrees Celsius, and is given by $S(T) = 0.6T + 331.4$. Which of the following statements is the best interpretation of the number 331.4 in this context?

A) The speed of sound, in meters per second, at 0°C
B) The speed of sound, in meters per second, at 0.6°C
C) The increase in the speed of sound, in meters per second, that corresponds to an increase of 1°C
D) The increase in the speed of sound, in meters per second, that corresponds to an increase of 0.6°C

A. LABEL & MATCH
$S(T) = .6T + 331.4$
$y = .6x + 331.4$
$y = mx + b$
$y = .6(0) + 331.4$
$y = 331.4$

3 SLOPE INTERPRETATION 2

A landscaping company estimates the price of a job, in dollars, using the expression $60 + 12nh$, where n is the number of landscapers who will be working and h is the total number of hours the job will take using n landscapers. Which of the following is the best interpretation of the number 12 in the expression?

A) The company charges $12 per hour for each landscaper.
B) A minimum of 12 landscapers will work on each job.
C) The price of every job increases by $12 every hour.
D) Each landscaper works 12 hours a day.

A. LABEL & MATCH
$P = 12NH + 60$
$y = 12x + 60$
$y = mx + b$
$\$ = \$x + \$$
B. P.O.E.

*SLICK
13 SLOPE INTERPRETATION 5

At a restaurant, n cups of tea are made by adding t tea bags to hot water. If $t = n + 2$, how many additional tea bags are needed to make each additional cup of tea?

A) None
B) One
C) Two
D) Three

NOTICE WORDS GIVE YOU $x =$

$t = N + 2$
$x = Y + 2$
$x - 2 = Y$
$Y = x - 2$
CHANGE TO Y=

A. LABEL/MATCH
B. PLUG IN #s
$Y = x - 2$
$N = t - 2$

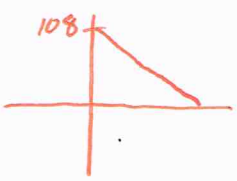
1	$t-2$	$t=3$
2	$t-2$	$t=4$
3	$t-2$	$t=5$
4	$t-2$	$t=6$

4 SLOPE INTERPRETATION 1

Kathy is a repair technician for a phone company. Each week, she receives a batch of phones that need repairs. The number of phones that she has left to fix at the end of each day can be estimated with the equation $P = 108 - 23d$, where P is the number of phones left and d is the number of days she has worked that week. What is the meaning of the value 108 in this equation?

A) Kathy will complete the repairs within 108 days.
B) Kathy starts each week with 108 phones to fix.
C) Kathy repairs phones at a rate of 108 per hour.
D) Kathy repairs phones at a rate of 108 per day.

A. LABEL & MATCH
$P = -23d + 108$
$y = -23x + 108$
$y = mx + b$
b = y-INTERCEPT



*SLICK
13 SLOPE INTERPRETATION 8

Oil and gas production in a certain area dropped from 4 million barrels in 2000 to 1.9 million barrels in 2013. Assuming that the oil and gas production decreased at a constant rate, which of the following linear functions f best models the production, in millions of barrels, t years after the year 2000?

A) $f(t) = \frac{21}{130}t + 4$
B) $f(t) = \frac{19}{130}t + 4$
C) $f(t) = -\frac{21}{130}t + 4$
D) $f(t) = -\frac{19}{130}t + 4$

A. LABEL & MATCH
"DROPPED" IS NEGATIVE SLOPE
B. P.O.E.
C. DROP IN 13 YRS = $4.0 - 1.9 = 2.1$
D. P.O.E.
SIDENOTE: THIS SAME AS SAYING
$y = -\frac{21}{130}t + 4$
AND $y = -\frac{2.1}{13}t + 4$
BOTH SLOPES ARE EQUAL SLICK