Algebra I - Unit 11: End of Course Review - Meaning and Changes in *m* & *b*

Station 2

The amount an appliance repairman charges for each job is represented by the function $t=50h + 35$, where h represents the number of hours he spent on the job and t represents the total amount he charges in dollars for the job. The repairman plans to change the amount he charges for each job. The amount he plans to charge is represented by the function $t=50h + 45$.

What will be the effect of this change on the amount he charges for each job?

A The total amount he charges for each job will increase by $10.

B The total amount he charges for each job will decrease by $10.

C The amount he charges per hour will increase by $10.

D The amount he charges per hour will decrease by $10.

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Station 3

Mrs. Smith calls an air conditioner repair company. She finds out that a service technician charges $35 to detect the problem and $20 every 15 minutes thereafter to repair the problem. The cost of repairing Mrs. Smith's air conditioner is calculated using the function $f(m) = 35 + 20m$, where m represents the number of 15-minute intervals the technician works repairing the problem and $f(m)$ represents the total charge of working on the air conditioner. If the number of 15-minute intervals is graphed on the x-axis and the cost is graphed on the y-axis, which of the following is represented by the y-intercept of this graph?

A. The number of 15-minute intervals the technician work on the air conditioner

B. The flat rate the technician charges to detect the problem

C. The total charge for fixing the air conditioner

D. The amount the technician charges for every 15-minute interval

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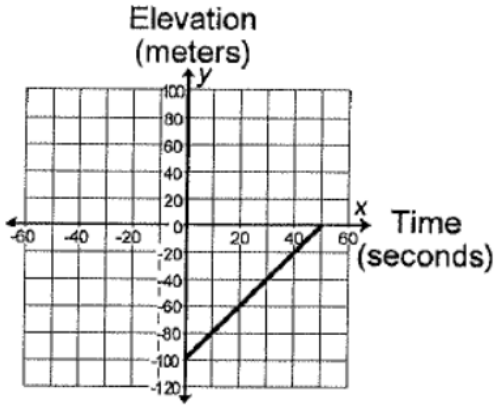
Station 4

A submarine that operates at a depth of 100 meters is ascending at a constant speed of 2 meters per second. The graph shows the relationship between the time in seconds and the elevation of the submarine. What does the *x*-intercept of this graph represent?



A. The number of seconds the submarine is submerged before it begins its ascent.

B. The speed at which the submarine ascends.

C. The number of seconds it takes the submarine to reach the surface of the water.

D. The elevation of the submarine when it begins its ascent.

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Station 5

A line has the equation $y = 3x - 7$. If the slope of the line is doubled and 5 is added to the y-intercept, which equation represents the new line?

A. $y = 6x - 12$
B. $y = 6x - 2$
C. $y = 6x + 2$
D. $y = 8x - 14$

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Station 6

Geothermal energy is transferred from heated rocks below the earth's surface to water when water comes into contact with the rocks. The formula $t(d) = 25d + 17$ can be used to estimate the Celsius temperature, $t(d)$, of a rock when the rock is at a depth of d kilometers below the earth's surface. If the depth, in kilometers, of the rock is graphed on the x-axis and the temperature, in degrees Celsius, of the rock is graphed on the y-axis, which of the following is represented by the slope of this graph?

A. A rate of change of $17^{\circ}C$ for every kilometer of depth

B. A temperature of $25^{\circ}C$ at the earth's surface

C. A rate of change of $25^{\circ}C$ for every kilometer of depth

D. A temperature of $17^{\circ}C$ at the earth's surface