

Linear Equations Homework Day 2

Directions: Be sure to show all work, communicate your thought process, and justify your reasoning. Remember to check that your answers are complete, correct, and reasonable.

- Complete **ALL level one** problems and **ALL "Throwback"** problems.
- Choose and complete **ANY ONE level two** problem.

**For a bonus point, complete the Level 3 problem! 😊*

Level 1

1. Write an equation in slope-intercept form for the line passing through the points $(-4,2)$ and $(0,-5)$.
2. After nine weeks, Benny has \$243 in his savings account. After 20 weeks, he has \$518. Assuming he added the same amount each week, how much money did Benny have in his account originally? How much money will he have after one year?
3. Describe the relationship between Line T, which passes through the points $(8, -4)$ and $(32,2)$ and Line V, which passes through the points $(7, -22)$ and $(9, -30)$.
4. Determine the slope and y-intercept of the line passing through the points $(-1,4)$ and $(8,-14)$.
5. Luca's mother opened a savings account for him on his birthday, but did not tell him how much she deposited initially. In place of providing Luca with an allowance, his mother deposits his allowance into his savings account each week. The amount of allowance is consistent every week. After ten weeks, Luca's mother tells him that he has \$453 in his savings account. After twenty-eight weeks, she tells him he has \$939 in savings. Luca is trying to figure out how much his mother deposited initially, and how much his allowance is each week, in order to determine how much money he will have to put towards a car in five years, if he does not withdraw any money. Explain how he can do so.

Level 2

6. A line passes through the points $(27,8)$ and $(-3,2)$. What will the y-value be when the x-value is 100?
7. A line passes through the following three points: $(-5,9)$, $(13, -18)$, and $(x, 450)$
 - Where does the line cross the y-axis?
 - Where does the line cross the x-axis?
 - Find the missing value for x, and explain how you arrived at your answer.
8. Ring-a-long cell phone company charges a base rate of \$15 per month for a plan that includes 500 minutes. They charge 13 cents for every minute over 500. Save-a-cell charges a base rate of \$20 per month for a plan that includes 400 minutes, but they only charge 8c cent for every minute over 400. For how many minutes of use per month do you predict will Save-a-cell's plan will be a better deal than Ring-a-long's plan? Explain.

Level 3

9. Karmine started a savings account using the money he received as birthday gifts. After that, he added the same amount to his savings account each week. After nine weeks, he had \$387. After fifteen weeks, he had \$1053 less than quadruple the amount he had after nine weeks. After 20 weeks, he withdrew \$300 to purchase Christmas presents. Assuming Karmine continues to add the same

amount each week, and does not withdraw any more money, how long will it take Karmine to have \$1000 in his savings account?



10. Evaluate $|3p| - 4c^3 \div -2p + 8c$ for $c = 3$ & $p = -6$.

11. Solve for x . $k + \frac{x}{2m} = 4n$

12. The formula for the perimeter of an isosceles trapezoid is $P = 2x + b_1 + b_2$, where x is the length of one leg of the trapezoid and b_1 and b_2 are the lengths of the bases. Which formula shows how the length of a leg of the trapezoid can be determined from the perimeter and the two bases?

a. $x = (P + b_1 + b_2) / 2$

b. $x = (P - b_1 - b_2) / 2$

c. $x = P - (b_1 + b_2) / 2$

Selected Solutions

- 1.
- 3.
- 5.
- 7.
- 9.
- 11.