

Pre-Algebra Homework #12

- 1) Could the probability of any given event occurring be any of the following numbers: 3, -2 , 3.6, $\frac{9}{5}$, 1.478, -1 , 125%?
- 2) Kelly earns \$8 for every car she washes. Is the amount of money she earns proportional to the number of cars she washes? Make a table to help you identify the type of relationship and state the constant of proportionality.
- 3) You have been hired to design a compound probability experiment where the final theoretical probability of the compound event is exactly $\frac{5}{24}$. Create at least one, detailed, compound probability experiment that meets these requirements.
- 4) Nick wants to buy a new laptop. The laptop he wants is on sale for 25% off its original cost of \$299. He has a coupon for an additional 8% off the sale price. How much will Nick pay before sales tax?
- 5) Graph the equation $2x + 3y = 15$ using the equation of a line, and identify the constant of proportionality from the equation.
- 6) Phoebe is saving up money to buy a toy that she really wants. She has \$8.57 in her piggybank and her parents give her an allowance of \$3.41 every week. The toy she wants to buy costs \$87. Write an equation that models this situation and then solve it to determine how many weeks Phoebe has to wait until she has enough money to buy that toy.
- 7) Every day, Rebecca spends \$6 on breakfast and \$7 on lunch. If she has budgeted \$611 dollars for buying breakfast and lunch every day, write an equation that models this situation and then solve it to determine how many days she can afford to pay for breakfast and lunch until her money runs out.

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- 8) Ben has \$1,000 in his bank account. If he gets paid \$135 for every 8 hours that he works and he puts all of his earnings in his bank account, create an equation that models Ben's bank account balance based on the number of hours he works. Graph this equation, and determine how much money Ben will have in the bank after working for 7 weeks, assuming that he works 8 hours every day, 7 days per week.
- 9) Joe is 438 feet from his house and wants to walk home. The length of Joe's stride, how far he travels when he takes one step, is 3 feet. Write an equation that models this situation and then solve it to determine how many steps it takes Joe to get back home.
- 10) Max the cat eats \$4 per day in cat food and goes through \$2 per day in vitamin supplements and kitty litter. Dr. Phillips adopted Max from a shelter for \$15. If, as of today, Dr. Phillips has spent \$405 on his cat, write an equation that models this situation and then solve it to determine how many days Dr. Phillips has owned Max.
- 11) Farmer Joel is struggling to make a profit from selling his crops. He has \$400 of profit left over from last season, to start off this farming season. If he makes a \$500 profit for every four acres of corn he plants, create an equation that models Joel's profit based on the number of acres he plants. Graph this equation, and determine how many acres of corn Joel plants if he ends up with a total of \$9,775 in profit by the end of this season.
- 12) An airplane 30,000 feet above the ground begins descending at the rate of 2000 feet per minute. Assume the plane continues at the same rate of descent. Write an equation that models this situation and then use your equation to find the altitude of the plane after 5 minutes.
- 13) Suppose you receive \$100 for a birthday present, and you deposit it in a savings account. Then each week thereafter, you add \$5 to the account but no interest is earned. The amount in the account is a function of the number of weeks that have passed. Find an equation for the amount y you have after x weeks. Use your equation to find when you will have \$310 in the account.

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- 14) Marty is spending money at the average rate of \$3 per day. After 14 days he has \$68 left. The amount left depends on the number of days that have passed. Write an equation for this situation and then find how much money he started with.
- 15) Suppose a 5-minute overseas call costs \$5.91 and a 10-minute call costs \$10.86. The cost of the call and the length of the call are related. Assuming a constant-increase situation, what is the cost y of a call of x minutes duration? How long can you talk on the phone if you have \$12 to spend?
- 16) Biologists have found that the number of chirps some crickets make per minute is related to temperature. The relationship is very close to being linear. When crickets chirp 124 times a minute, it is about 68 degrees Fahrenheit. When they chirp 172 times a minute, it is about 80 degrees Fahrenheit. Find an equation for the line that models this situation. How warm is it when the crickets are chirping 150 times a minute?
- 17) Mrs. Gatto's book sells 1,576 copies in its first week after its release. It continues to sell 648 copies per week. The number of copies sold is a function of the number of weeks that have passed. Find an equation for the number of copies, y , that have sold after x weeks. Use your equation to find in which week Mrs. Gatto will sell her 10,000th book.
- 18) At the church carnival Adam ended the night with a total of 125 tickets. He earned 5 tickets per game played and he played 20 games. All students were given a set amount of tickets at the beginning of the night. How many tickets did each student get at the start of the night?
- 19) Trevor started caring for his cousin's fish. The fish tank had some fish in it when he got it. He started adding 2 fish a month for 7 months. None of the fish have died and he currently has 20 fish in the tank. How many fish did he start with?

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- 20) An Internet service provider charges \$18 per month plus an initial set-up fee. One customer paid a total of \$81 after 2 months of service. Write an equation modeling this situation. What is the initial set-up fee? How much does it cost after 5 months of service?

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