5.4 Modeling with Equations

Math 7

Write your questions here!

Ex 1: Find an equation and solve for each of the situations below

Twice the sum of a number and eleven is 24.

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Ex 2: Mr. Kelly LOVES model airplanes. He went to the store and bought three new model airplanes for $5.95 each and some glue to put them together. All total he spent $22.50.

What is the unknown value in this situation? What would be a good variable to use for it?

What's an equation to model this situation? Solve it. Make sure you include units that describe your answer.

Ex 3: Brust is struggling to keep his dogs in his rectangular shaped yard so he wants to build a wall. He knows the perimeter of his yard is 46 meters and the width is 8 meters. What is the length of his yard?

Find a model for the situation, define its variable and solve it.

YOU TRY!

Ex 4: Mr. Brust has his children collect oranges from his backyard. He gives them $0.75 to start and then pays them $0.35 for each orange they bring back. One day Mr. Brust had to pay one of his children $17.55. How many oranges did they bring back?

Find a model for the situation, define its variable and solve it.

Now, summarize your notes here!

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PRACTICE

Directions: Circle the equation that best fits the given situation. Then SOLVE the equation.	
1) The sum of a number divided by 4 and 8 is 12. What's the number? a. $\frac{n}{4} + 8 = 12$ c. $\frac{n+4}{8} = 12$ b. $\frac{4}{n} + 8 = 12$ d. $\frac{n+8}{4} = 12$ Solution:	2) The sum of a number and 8 divided by 4 is 12. What's the number? a. $\frac{n}{4} + 8 = 12$ c. $\frac{n+4}{8} = 12$ b. $\frac{4}{n} + 8 = 12$ d. $\frac{n+8}{4} = 12$ Solution:
3) Seven is the same as the sum of four times a number and 5. What's the number? a. $7 = 5h + 4$ c. $7 = 4(h + 5)$ b. $7 = 5(h + 4)$ d. $7 = 4h + 5$ Solution:	4) Mr. Kelly has \$60 and steadily loses \$2 every hour. How many hours until he has only \$12 left in his wallet? a. $2x + 60 = 12$ c. $2x - 60 = 12$ b. $60 - 2x = 12$ d. $-60 - 2x = -12$ Solution:
5) Mr. Brust needs to rent a car after busting up his on the bumpy Italian roads. He needs to pay \$25 for insurance and \$40 a day. How many days can he rent the car if he only has \$225. a. $40d + 25 = 225$ c. $25d + 40 = 225$ b. $40(d + 25) = 225$ d. $25(d + 40) = 225$ Solution:	6) Ted Mosby currently has \$400. He plans on finding some more money this weekend. On Monday, he is going to give each of his three friends an equal share of his money. How much more money did he gain over the weekend if each friend gets \$300 each. a. $\frac{m}{3} - 400 = 300$ c. $3m - 400 = 300$ b. $3m + 400 = 300$ d. $\frac{400+m}{3} = 300$ Solution:

Directions: For each situation make an equation, define your variables and solve your equation.

7) Ross Geller starts a moving company to get couches up stairwells. He charges a flat rate of $10 and then $3.50 for each flight of stairs he moves the couch up. How many flights of stairs did he move up a couch if he made $94?

Equation: **Answer:**

8) Michael Scott is a GREAT boss! He agrees to TRIPLE the amount of money that Dwight and Jim raise for their favorite charity. Dwight raised $145 and they are hoping to raise $1500 overall. How much did Jim raise by himself?

Equation: **Answer:**

9) Leslie Knope goes to the Pawnee flea market to sell copies of her book. The flea market charges her $10 to open up the table, but she makes $12.75 for every book. How many books does she need to sell to make $500?

Equation: **Answer:**

10) When Michael Jordan retired he spent time as a water boy for the Cleveland Cavaliers. One day he was preparing for their upcoming road trip. He had 8 bottles left over from last trip. He knows he can buy cases of water to save money. Each case has 12 bottles of water. How many cases of water does he need to buy to have 200 bottles of water for the trip?

Equation: **Answer:**

11) Natasha Romanov and Clint Barton are running low on arrows and are preparing for the next big Avengers trip. Natasha knows that they will need twice as many as they have currently. If Clint has 14 on him, how many does Natasha have if they need 70 total arrows for the trip?

Equation: **Answer:**

Directions: For each situation make an equation, define your variables and solve your equation.

1) Monica Geller is busy cooking up for a big catering job this weekend. The host agrees to pay Monica $75 up front and then will pay her $9.50 for every person eating. How many people did Monica cook for if she made $673.50 for the job?

Equation: **Answer:**

2) Below is an equation that could model MANY different scenarios. Make up a scenario in which the given model would make sense and write it in complete sentences. Then solve to find your solution.

$$300 = 7x + 13$$

EXIT TICKET –

Below are two POSSIBLE scenarios for the given model. For each explain WHY or WHY NOT each situation would be a possible scenario for the equation.

$$36 = 2(x + 10)$$

Scenario #1: Brust is going to double the number of quarters that Mr. Kelly and Mr. Sullivan have in their pockets. Mr. Kelly has 10 quarters and Brust knows that he'll need 36 total quarters. How many quarters does Mr. Sullivan have?

Scenario #2: Mr. Bean has 10 students in class and gets two more kids every week. How many weeks until Mr. Bean has 36 students?