

Day 6 - Comparing Slope Intercept and Standard Form - Practice

When to Use Slope Intercept Form ($y = mx + b$)

- **Rate** – the rate is your slope
 - This number is always related to the x value
 - Per or each is often associated with slope
- **Flat Fee/Starting Amount** – this is your y-intercept
 - This value is constant

When to Use Standard Form ($Ax + By = C$)

- **Two Numbers** – represent x and y
 - Numbers per x and numbers per y
 - Typically addition is involved
- **Total** – what equation is set equal to
- No beginning amount
- Neither variable is dependent on the other

Directions: Set up an equation for each scenario.

<p>1. A basketball team scored 60 points by making a combination of 2 point shots and 3 point shots. Write an equation to determine the combination of points scored by the team.</p> $2x + 3y = 60$	<p>2. Marsha has \$125 now and plans to save \$35 per week. Write an equation to determine how much she has in savings each week.</p> $y = 35x + 125$
<p>3. Raul and his friends rent a sailboat for \$15 per hour plus a basic fee of \$50. Write an equation to determine the total cost of renting a sailboat.</p> $y = 15x + 50$	<p>4. Ed has \$35 to buy paints and brushes for a school project. Jars of paint cost \$4 each. The brushes are \$2 each. Write an equation to determine the combination of brushes and paint he can buy.</p> $4x + 2y = 35$
<p>5. A teacher starts the year with \$600 for art supplies. He plans to spend \$40 per week on supplies. Write an equation to determine how much money he has remaining each week.</p> $y = 600 - 40x$	<p>6. Your school is sponsoring a pancake dinner to raise money for a field trip. You estimate that 200 adults and 250 children will attend. You want to raise \$3800. Write an equation to find out what ticket prices to set to raise \$3800.</p> $200x + 250y = 3800$
<p>7. You are visiting Washington DC and a taxi company charges a flat fee of \$3.00 for using the taxi and an additional \$0.75 per mile. Write an equation that determines the cost of the taxi ride.</p> $y = 0.75x + 3$	<p>8. In a supermarket, each cup costs \$4 and each bowl costs \$6. You have \$34 to spend. Write an equation to determine the combinations of bowls and cups you can buy.</p> $4x + 6y = 34$

Problems 9-13: Write an equation in standard form or slope intercept form to model each situation. Then answer the question.

9. You have \$25 in a book store gift card. You want to buy magazines that cost \$3 each and books that cost \$5 each. How many books can you buy if you buy 3 magazines?

Equation: $3x + 5y = 25$

$\hookrightarrow x = 3$

$3(3) + 5y = 25$

$9 + 5y = 25$

$5y = 16$

$y = 3.2$

Solution: at most 3 books if you purchase 3 magazines

10. Nick is given \$50 to spend on a vacation. He decides to spend \$5 a day. The amount Nick has left and the number of days are related. When will Nick have \$15 left?

Equation: $y = 50 - 5x$

$\hookrightarrow y = 15$

$15 = 50 - 5x$
 $-50 -50$

$-35 = -5x$

$7 = x$

Solution: At 7 days, he will have \$15 left

11. Gail plans to spend \$20 on rides at an amusement park. The Ferris wheel costs \$2 and roller coasters cost \$3. How many Ferris wheel rides can Gail ride if she rides roller coasters 4 times?

Equation: $2x + 3y = 20$

$\hookrightarrow y = 4$

$2x + 3(4) = 20$

$2x + 12 = 20$

$2x = 8$

$x = 4$

Solution: Ride Ferris Wheel 4 times

12. A 100-point test has x questions worth 2 points apiece and y questions worth 4 points apiece. If you have 24 questions worth 4 points apiece, how many questions will be worth 2 points apiece?

Equation: $2x + 4y = 100$

$2x + 4(24) = 100$ $\hookrightarrow y = 24$

$2x + 96 = 100$

$2x = 4$

$x = 2$

Solution: 2 questions worth 2 points

13. A plane loses altitude at the rate of 5 meters per second. It begins with an altitude of 8500 meters. The plane's altitude is a function of the number of seconds that pass. When will the plane land (hint: what is the altitude when the plane lands?)

Equation: $y = 8500 - 5x$

$0 = 8500 - 5x$

$5x = 8500$

$x = 1700$

$\hookrightarrow y = 0$

Solution: 1700 seconds to land