Foundations of Algebra
**Day 4 – Slopes & Y-Intercepts**
**Practice Assignment**

Unit 5: Linear Functions

Name: Key Practice
Date: _____ Block: _____

Calculate the y-intercept:

1. (0, -3)

| x | y |
|---|---|
| 4 | -6 |
| 8 | -9 |
| 12 | -12 |
| 16 | -15 |
| 20 | -18 |

2. (0, -1)

| x | y |
|---|---|
| 3 | 35 |
| 6 | 53 |
| 9 | 71 |
| 12 | 89 |
| 15 | |

3. Josh received a gift card to the local movie theater. After going to 2 movies, the balance of her gift card dropped to $64. After going to 3 more movies, the balance of her gift card dropped to $40 remaining. What was her original gift card balance? Express your answer in real world terms and as a y-intercept.

$\frac{64-40}{5-2} = \frac{24}{3} = \$8$ per movie

| # of movies | Gift card Balance |
|---|---|
| 0 | 80 |
| 1 | 72 |
| 2 | 64 |

The y-intercept is (0, 80), which means your giftcard had a starting balance of $80

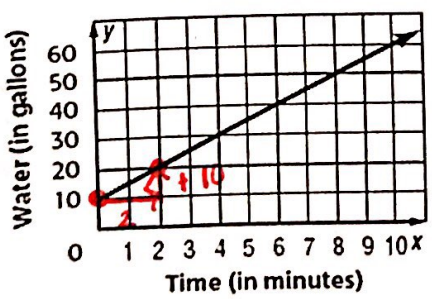
4. The cost to shop a package in the mail includes a basic shipping charge plus an additional cost per number of pounds the package weighs. A three pound package costs $6.30 to shop. A ten pound package costs $14 to shop. What is the cost per pound and what is the basic shipping charge?

$\frac{14-6.30}{10-3} = \frac{\$7.70}{7\text{ lbs}} = \frac{\$1.10}{1\text{ lb}}$

| # of lbs | total cost |
|---|---|
| 0 | 3.00 |
| 1 | 4.10 |
| 2 | 5.20 |
| 3 | 6.30 |

It costs $1.10 per pound and the basic shipping charge is $3.00.

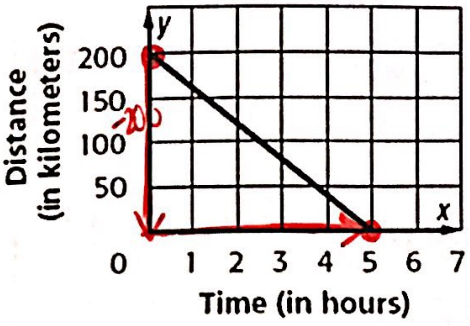
5. Ryan is adding water to his swimming pool. The graph below shows the amount of water in the pool as more water is added. How fast is Ryan adding water to the pool? How many gallons were in the pool to start?




- There were 10 gallons in the pool already
- Ryan is adding 5 gallons per minute

$\frac{10\text{ gallons}}{2\text{ min}} = \frac{5\text{ gallons}}{1\text{ min}}$

6. Frank is planning to drive his car on the Overseas Highway, the scenic road that connects the islands in the Florida Keys to the Florida mainland. Calculate the slope and y-intercept and interpret what they mean according to the problem scenario.

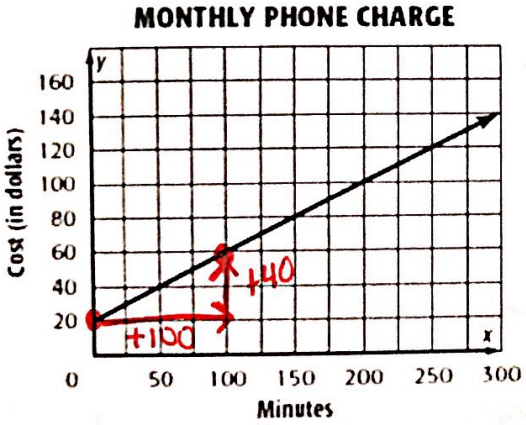



$\frac{-200\ km}{5\ hr} = \frac{-40\ km}{1\ hour}$

y-intercept (0, 200)

The y-intercept means Frank starts 200 km from where he wants to go. He travels 40 km per hour to reach his destination.

7. The graph below represents Sarah's monthly phone charge; a monthly fee plus a charge for each minute she uses her phone. How much is the monthly fee and how much does she pay per minute?




$\frac{\$40}{100\ min} = \frac{\$.40}{1\ min}$

The monthly fee (starting amount) is $20. She pays $.40 per min (slope)

8. How many calories do you burn per minute on the exercise bike?

| Number of Minutes on an Exercise Bike | Total Number of Calories Burned |
|---|---|
| 15 | 180 |
| 30 | 360 |
| 45 | 540 |
| 60 | 720 |

$\frac{360-180}{30-15} = \frac{180\ calories}{15\ minutes} = \frac{12\ calories}{1\ min}$

You burn 12 calories for every minute of exercise.

9. Carmen is selling pies at the cherry festival to raise money for her local volunteer fire department. She sells 85 pies for $12 each. The supplies to make the pies cost Carmen $340. What is the unit rate of profit she made per pie?

$85 \times 12 = \$1020$ income

$-340$

$\$680$ actual profit

$\frac{\$680}{85\ pies} = \$8$ per pie