Name: **MRS. McLEAN (II)**

PA Ratios & Proportions Study Guide

Calculator Inactive

1) Terri used ½ cup of flour to make 12 biscuits. How much flour does she use for each biscuit?

$$\frac{1/2\,c}{12\,b}$$

1/24 cup per biscuit

2) What is the missing term in the proportion?

$$\frac{6}{10} = \frac{x}{15}$$ **x = 9**

3) Nancy reads 16 pages every 25 minutes. At this rate, how many pages will she read in 75 minutes?

$$\frac{16p}{25m} = \frac{x}{75m}$$ **48 pages**

4) Mrs. Smith buys 108 diapers every 3 weeks. At that rate, how many diapers does she buy in one week?

$$\frac{108\,d}{3\,w}$$ **36 diapers**

5) Do the ratios form a proportion? $\dfrac{4}{7}, \dfrac{24}{35}$ (×4 on top, ×5 on bottom)   **NO!**

6) Harry ran 3.1 miles in 0.5 hours. What was his rate in miles per hour?

$$\frac{3.1\,mi.}{0.5\,hr}$$ **6.2 miles**

7) The basketball team won 8 out of 15 games. What is their ratio of wins to losses?

$$\frac{8\,w}{15\,g} \rightarrow \frac{8\,wins}{7\,loses}$$

Calculator Active

10) Which would be the lowest price per ounce?

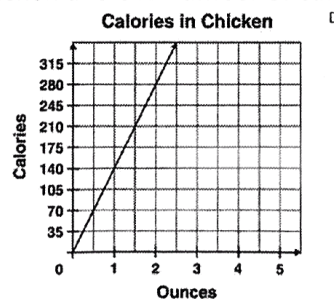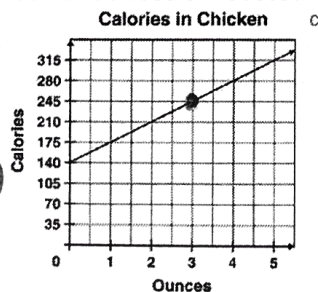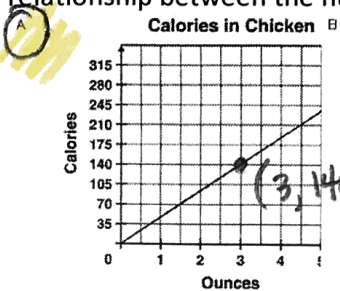|	
14 pounds	$16.24
30 pounds	$33.30
35 pounds	$41.30
50 pounds	$60.00

$1.16
$1.11
$1.18
$1.20

30 pounds

18) A 3-ounce serving of roasted chicken contains 140 calories. Based on this information, which graph shows the relationship between the number of ounces of roasted chicken and the number of calories in the chicken?

(3, 140)
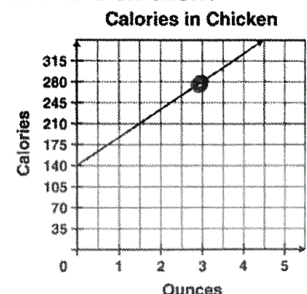
19) If Chauni continues to write songs at the same rate, how many songs will she have written in 60 days?
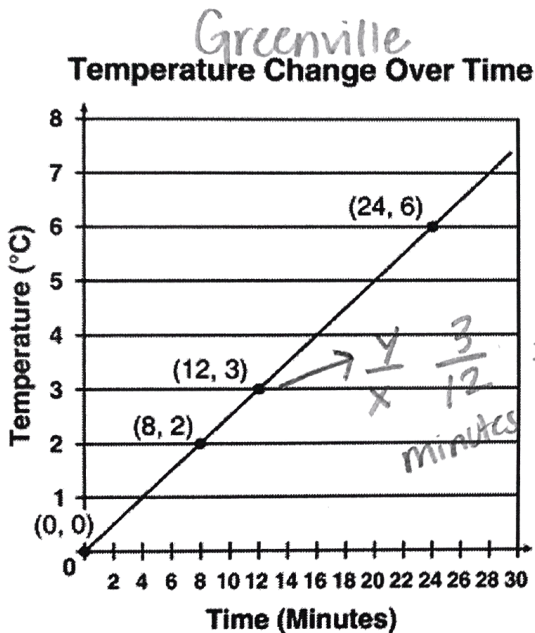
Chauni's Song Writing
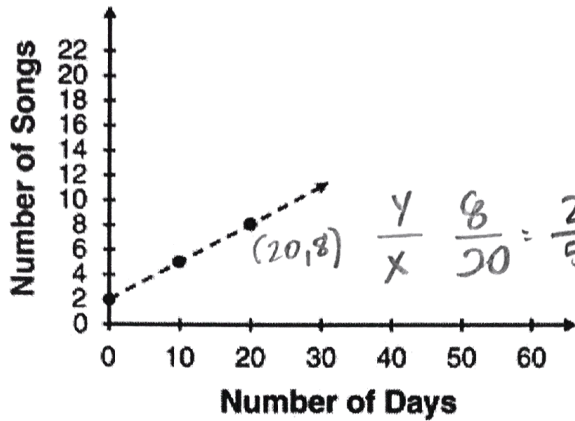
$\dfrac{Y}{X} \quad \dfrac{8}{20} = \dfrac{2}{5}$ OR 0.4 songs per day $(20,8)$

0.4×60

$= 24$ songs

OR $\dfrac{20\,days}{8\,songs} = \dfrac{60\,days}{X}$

20) The graph shows the temperature change in Greenville after the sun rises. The temperature in Miami rose at a constant rate and it had warmed up 25 degrees in 5 hours. What is the difference in the temperature increases between the two cities?

Greenville
Temperature Change Over Time

(24, 6)
(12, 3)
(8, 2)
(0, 0)

$\dfrac{Y}{X} \quad \dfrac{3}{12} = \dfrac{15\,degrees}{60\,min\ (1\,hour)}$ minutes

Miami

$\dfrac{25d}{5\,hrs} = \dfrac{5\,degrees}{1\,hr}$

Greenville − Miami

$15° - 5°$

$= 10°$

21) A bus travels 320 miles in 6.4 hours. If the bus continues at the same rate, which equation can be used to find m, the number of miles the bus will travel in 9 hours?

$\dfrac{320\,mi}{6.4\,hr} = \dfrac{m}{9\,hr}$

OR $320(9) = 6.4m \longrightarrow 9(320) = 6.4m$

$\dfrac{320}{6.4} = \dfrac{9}{m}$

$\dfrac{9}{320} = \dfrac{6.4}{m}$

$6.4(320) = 9m$

22) Which equation shows a line that passes through the origin?
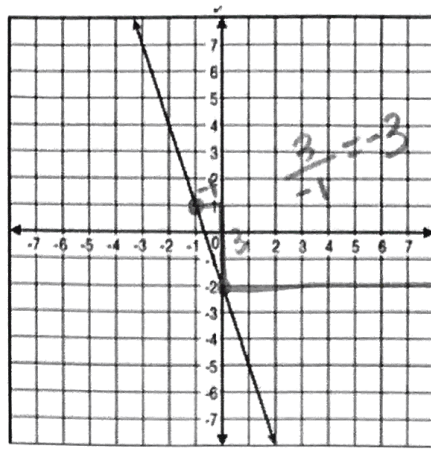
A) $y = \frac{1}{2}x$ B) $y = 2x - 1$

C) $y = x + 4$ D) $y = x - 8$

$y = mx + b$

→ y-int is 0

25) What is the equation of this line?

$\frac{3}{-1} = -3$ slope

$y = -3x - 2$

→ y-int is -2

A) y = -3x + 2   B) y = 3x + 2

C) y = -3x -2   y = 3x − 2

26) A recipe calls for ¾ cup of raisins to make 1 ½ cups of trail mix. How many cups of raisins would you need to make 8 cups of trail mix?

$$\frac{3/4 \; r}{1\frac{1}{2} \; tm} = \frac{x}{8 \; tm}$$

x = 4 cups of raisins

27) Natalie & Jamie are saving money for Disney. Natalie has saved $30 in 2 months while Jamie has saved $56.25 in 2 1/2 months. Which point would show the amount of money Natalie has saved after 4 months?
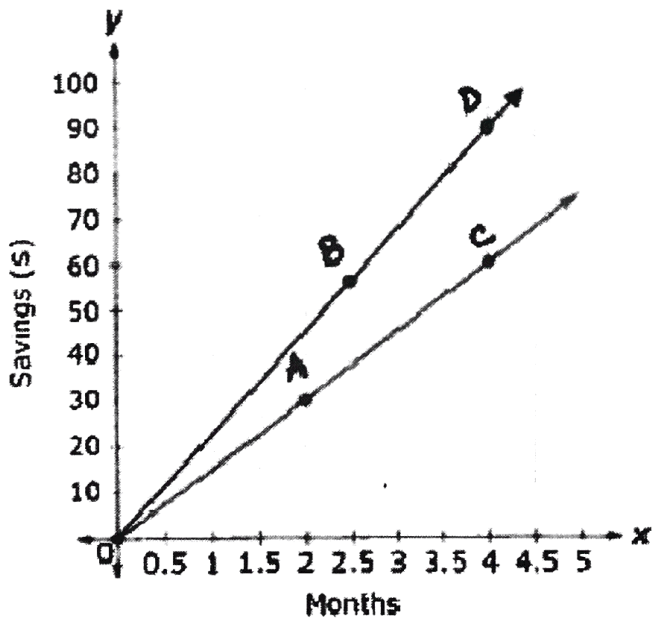
N: $\frac{\$30}{2 \; mo} = \$15 \; a \; month$

OR

$\frac{\$30}{2 \; mo} = \frac{x}{4 \; mo}$ x = $60

(4, 60)
point C

28) Laura's cell phone service costs $65 per month, plus an additional $0.10 per text message sent. The table below shows the cost for Zach's cell phone service based on the number of texts messages he sends.

Number of Texts (x)	Total Cost (y)
20	$50.00
50	$57.50
100	$70.00

(handwritten: +30 between 20 and 50; +7.50 between $50.00 and $57.50)

$$\frac{7.50}{30} = 0.25$$

How much cheaper is Zach's cell phone service than Laura's when no text messages are sent?

A $15

B $20   *(circled, highlighted)*

C $35

D $40

(handwritten work)

Laura:
$$y = 0.10x + 65$$
$$y = 0.10(0) + 65$$
$$y = 0 + 65$$
$$y = \$65 \quad \text{w/no texts}$$

Zach: $\frac{y_2 - y_1}{x_2 - x_1}$ OR

$$\frac{57.5 - 50}{50 - 20} \quad \frac{7.5}{30} = 0.25$$
$$y = .25x + 45$$
$$y = .25(0) + 45$$
$$y = \$45 \quad \text{w/no texts}$$

29) Tom's Landscaping charges a flat fee for supplies, plus $25 per hour of work. Tom charged a customer $90 for a job that required 3 hours of work. Which equation would calculate the total amount Tom's Landscaping charges for a job that requires x hours of work?

A   y = 15x + 25

B   y = 25x + 30

C   y = 25x + 15   *(circled, highlighted)*

D   y = 30x + 15

(handwritten work)

TOM $\overset{\text{total}}{\$90} = 25(3) + \text{flat fee}$
$$90 = 75 + \text{flat fee}$$
$$\$15 = \text{Flat Fee}$$
$$y = 25x + 15$$

Sophisticated mathematicians will study their NOTES/HW & rework missed problems!