Algebra 1 Practice Final Exam
Fall 2014

Name_____
Period_____

SHOW ALL WORK FOR CREDIT AND BOX YOUR ANSWER

1) Simplify and reduce. (Skill #1, 3)

a) $\frac{-4}{7}+\frac{1}{9}=$	b) $\frac{3}{11}-\frac{16}{33}=$	c) $\frac{3}{16}\times\frac{48}{7}=$	d) $\frac{11}{13}\div\frac{2}{39}=$	e) $\left(\frac{-2}{3}\right)^4=$

2) Simplify the expressions. (Skill #5)

a) $4x-10(12-4x)$	b) $56x+8z-5y+21x+30y+7z$

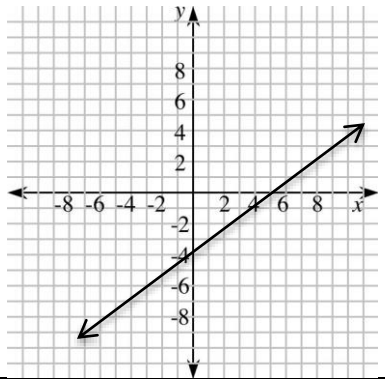
3) Solve for x using fraction busters to clear fractions. (Skill #6)

a) $\frac{1}{6}x-3=\frac{5}{24}$	b) $\frac{1}{5}x+\frac{2}{15}=\frac{5}{9}$

4) Solve for x. (Skill #7)

a) $-12x-40=32$	b) $-8x+5=14x+3$

5) Find the slope. (Skill #9)

a) Determine the slope of a line that passes through the points (-2, -12) and (-10, 20) using the slope formula.	b) Determine the slope of the line on the graph using a slope triangle. 

6) Write the equation of the in **slope intercept form**, y=mx+b (Skills #10, 11, 12)

a) That has a slope of -7 and a y-intercept of (0, -12).	b) That has a slope of $\frac{5}{8}$ and passes through the point (-24, 9).	c) That passes through the points (-5,-3) and (-7,9).

7) Determine the x and y-intercepts and graph the line containing these two points. (Skill #13)

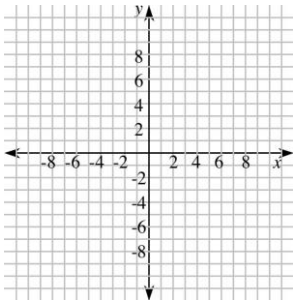
$y = -2x + 10$

x-intercept: (y=0)

y-intercept: (x=0)

x-int: (,)

y-int: (,)



8) Determine if the point is on line. (Skill 14)

Is the point (-5, 12) on the graph of the line $-4x + 2y = 4$?

Yes / No

9) Horizontal and Vertical Lines (Skill #15)

a) Circle the correct equation of the horizontal line that passes through (2, -8)	b) Circle the correct equation of the vertical line that passes through (-4, 9)
y = -8 y = 2 x = 2 x = 7	y = -4 y = 9 x = -4 x = 9

10) Parallel and Perpendicular Lines (Skill #16)

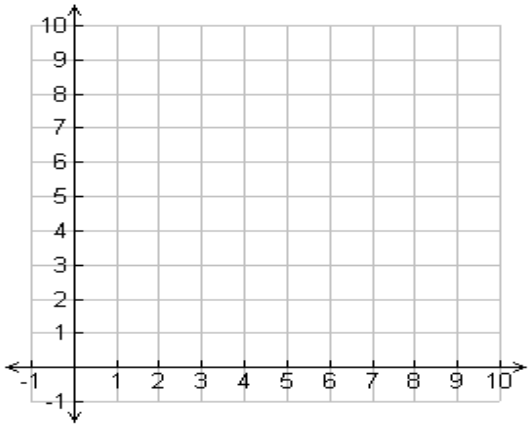
a) Write the equation of the line that is **parallel** to $-3x - 5y = 45$ and passes through the point (25, 4) in slope-intercept form.	b) Are these lines perpendicular? $10 = x + 2y$ $y = 2x - 13$ Yes / No c) Why are the above lines in (b) either perpendicular or not?

11) Relate 4 representations of a linear function. (Skill #17)

Bob has a goal of hiking an additional 2 miles per week to his weekly Sunday hike over summer break. He can already hike for 3 miles by the start of the first week of summer break.

a) Describe this scenario using a table of values with three entries. **Label the columns.**

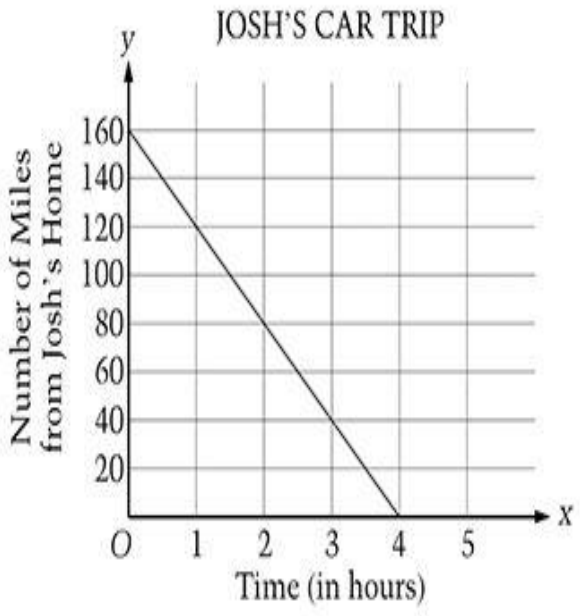
b) Describe this scenario by graphing it. **Label the axes**.



c) Describe this scenario with an equation. **Define the variables**.

12) Identify key features and their meaning of a linear graph. (Skill #18)

For the graph shown below:



a) Identify the y-intercept and explain its meaning for the context given.

b) Identify the slope and explain its meaning for the context given.

c) Describe if the graph is increasing, decreasing or constant.

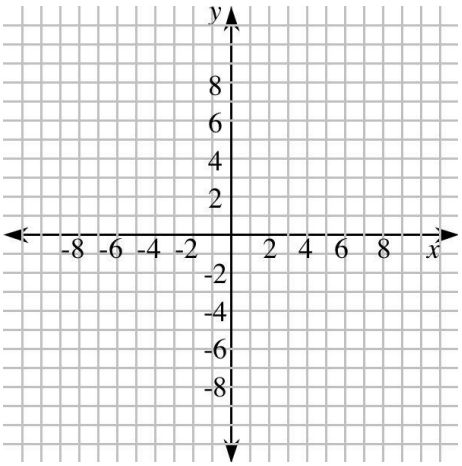
13) Linear Word Problem (Skill #8, 19)

Dominique is writing her first novel, which will be comprised of 12 chapters. She has already written 4 chapters. If she can write at a rate of 2 chapters per 3 weeks, how much longer will it take her to finish her novel?

14) Solving systems of linear equations. (Skill #20)

Use each method below to solve $\begin{cases} -x + 2y = -6 \\ y = 2x \end{cases}$

a) Graphing Method



POI (,)

b) Substitution Method

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c) Elimination Method

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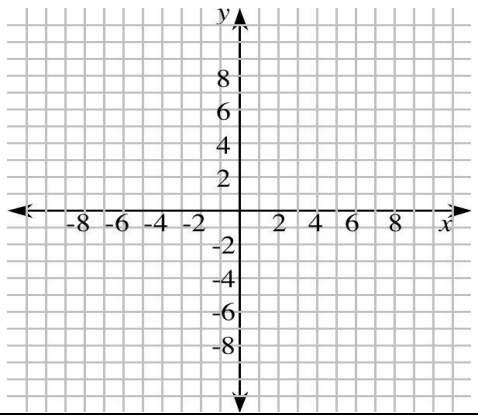
15) Graph systems of linear inequalities. (Skill 21)

$\begin{cases} y > -\frac{4}{5}x + 3 \\ 2x - 4y \leq 16 \end{cases}$



16) Systems of equations word problems (Skill #22)

a) Adam wants to make a snack mix out of raisins and peanuts. Raisins cost $3 per pound and peanuts cost $1 per pound. Adam wants to make 8 pounds of the snack mix and only pay $2 per pound for al the ingredients together. **How many pounds of raisins and how many pounds of peanuts should he buy?**

Define the variables:

x =

y =

Set up two equations in terms of x and y:

Solve using either substitution or elimination method.

Number of pounds of raisins =

Number of pounds of peanuts =

b) A plane flew from New York to Miami, which is 450 miles away. With a headwind, the trip took 3 hours. The return trip with a tailwind took 2 hours. **Find the speed of the plane and the speed of the wind.**

Define the variables:

x =

y =

Set up two equations in terms of x and y:

Flying in to headwind:

Flying with tailwind:

Solve using either substitution or elimination method.

Speed of plane =

Speed of wind =

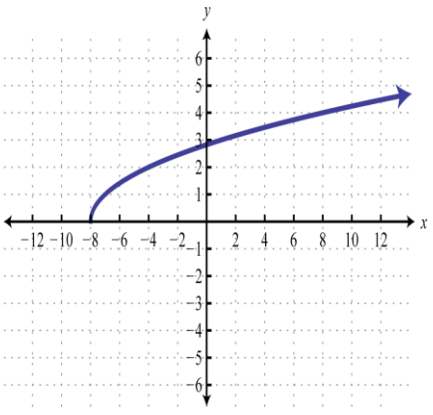
17) Function Notation and Domain and Range (Skill #23, 25)

a) If $f(x) = -3x^2 + x$, find :

$f(2)$=

$f(-4)$=

b) Determine the domain and range for the graph shown.



Domain:

Range:

18) Arithmetic Sequences (Skill #26)

Given an arithmetic sequence with $a_1 = 4$ and a common difference of 6:

a) Write the first 5 terms of the sequence.

b) Write the equation for the sequence in slope-intercept form.

19) Statistics (Skill #27, 28)

Given the following quiz scores:

34, 78, 78, 80, 88, 88, 90, 94, 96, 100

a) Compute the 5-number summary.

Minimum =

Q1=

Median =

Q3=

Max=

b) Are there any outliers? If so, which scores are outliers?

b) Draw a box plot

c) Calculate the mean.

d) Which is a better measure of center for this data, mean or median?

Why?