Math 80 Test 2 Practice test 2 Fall 2015

Fill in the blanks using the words term, factor, sum, product, difference, quotient, base, exponent, power, index, radicand or root.

1) (1 pt each) Given $5|y-1|-4=11$ $5|y-1|$ is both a Product and a term, 5 is a factor, $5|y-1|-4$ is a difference $y-1$ is a difference, $|y-1|$ is a factor, and $5|y-1|-4=11$ is an Absolute value equation.

2) (3 pt) Solve $|4y-3|=|3y-4|$ Express your answer as a **graph**.

$4y-3=3y-4$ $\quad$ $4y-3=-(3y-4)$

$\boxed{y=-1}$ $\quad$ $4y-3=-3y+4$

$7y=7$ $\quad$ $\boxed{y=1}$

Check $|-7|=|-7|$ ✓

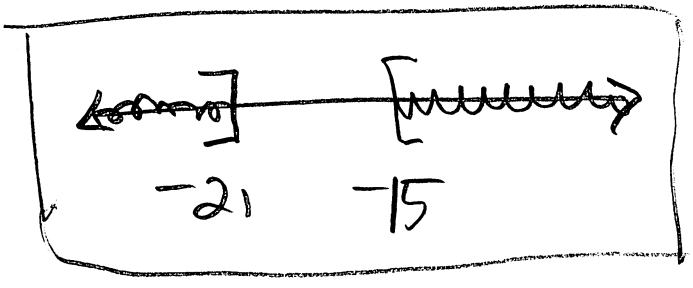
Check $|1|=|-1|$ ✓

3) (4 pts) Solve $|k+18|-15\geq -12$. Express your solution as a **graph**.

$|k+18|\geq 3$

$k+18\leq -3$ OR $k+18\geq 3$

$k\leq -21$ $\quad$ $k\geq -15$



4) (3 pts) Solve $16<3|2t+1|+7$. Express your solution in **interval notation**.

$9<3|2t+1|$

$3<|2t+1|$

$2t+1<-3$ OR $2t+1>3$

$2t<-4$ $\quad$ $2t>2$

$\boxed{t<-2}$ $\quad$ $\boxed{t>1}$

$\boxed{(-\infty,-2)\cup(1,\infty)}$

Check $t=0$

$16<3|1|+7$

false ✓

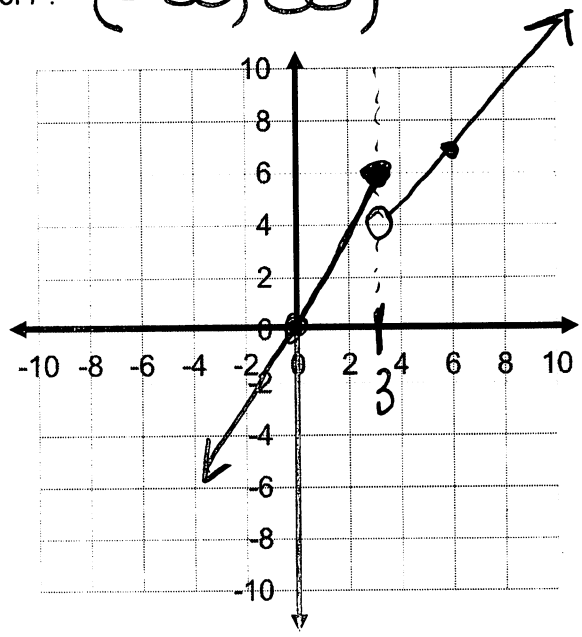
$t=2$ $\quad$ $16<3|5|+7$

true ✓

5) Given $f(r)=\begin{cases} r+1 & \text{if } r>3 \\ 2r & \text{if } r\le 3 \end{cases}$

a. (1 pt) What's the domain of f? $(-\infty, \infty)$

b. (4 pts) Graph the function



c. (1 pt) Find $f(-1)$ $f(-1)=2(-1)=-2$

d. (2 pts) Find $f(-4)-f(4)$

$f(-4)=2(-4)=-8$

$f(4)=4+1=5$

$-8-5=-13$

6) Fill in the blanks using the words consistent, inconsistent, dependent or independent.

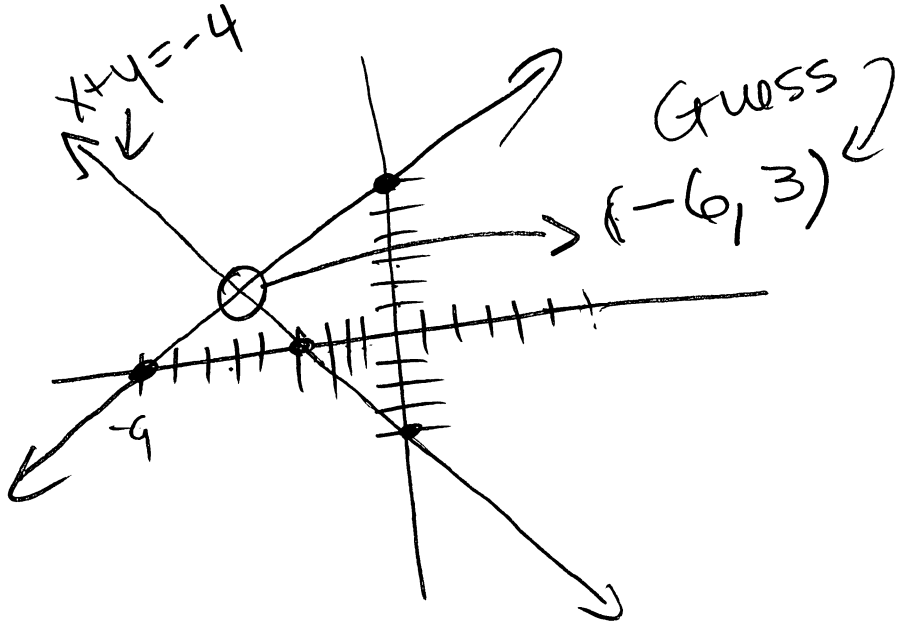
After solving a 2x2 system, using the addition method, a student is left with 0 = 0. If the student has done the method correctly this implies the system is consistent and dependent.

7) Given the system $\begin{aligned} x + y &= -4 \\ -2x + 3y &= 18 \end{aligned}$

a. Graph the system **using the intercept method** and predict an approximate solution. **You must** show your ordered pairs for both equations and write your predicted solution on the graph as an ordered pair. (4 points).

x	y
0	-4
-4	0

x	y
0	6
-9	0



b. Solve the system **using substitution**. Write your answer in set notation. (4 points)'

$y = -4 - x$

$-2x + 3(-4 - x) = 18$

$-2x - 12 - 3x = 18$

$-5x = 30$

$\boxed{x = -6}$

$-6 + y = -4$

$\boxed{y = 2}$

$\{(-6, 2)\}$

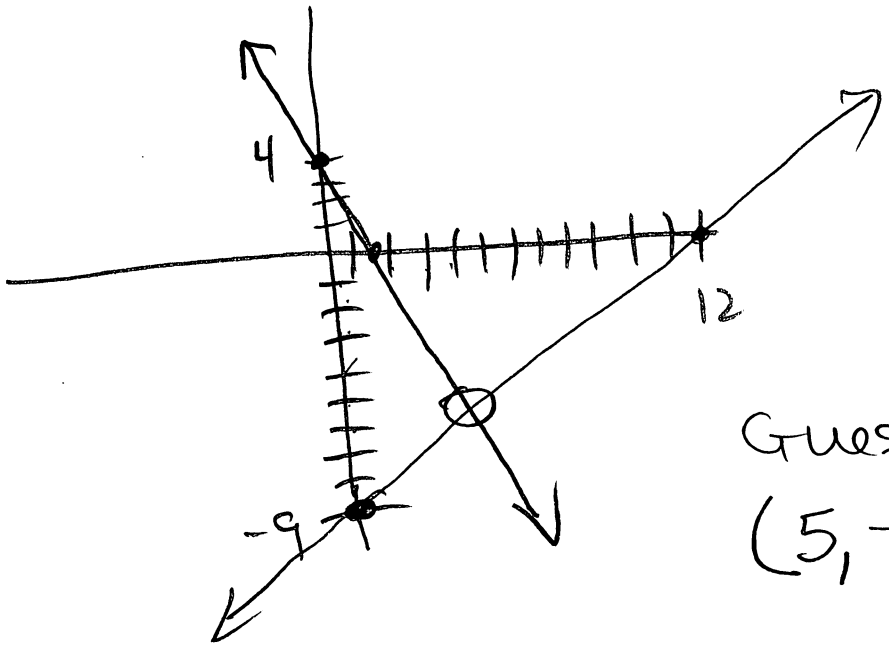
pretty close to the Guess.

8) Given the system $\begin{aligned} -3x + 4y &= -36 \\ 5x + 2y &= 8 \end{aligned}$

a. Graph the system **using the intercept method** and predict an approximate solution. **You must** show your ordered pairs for both equations and write your predicted solution as an ordered pair on the graph. (4 points).

X	Y
0	-9
12	0

X	Y
0	4
16	0



Guess
(5, -6)

b. Solve the system **using addition**. Write your answer in set notation. (4 points)

$-3x+4y=-36$
$5x+2y=8$

$5(-3x+4y)=5(-36)$
$3(5x+2y)=3(8)$

$-15x+20y=-180$
$15x+6y=24$

$26y=-156$

$y=-6$

$5x+2(-6)=8$
$5x-12=8$
$x=4$

$\{(4,-6)\}$ close to Guess

Check $432,000 + 288,000 = 720,000$ ✓

$0.04(432,000) + 0.025(288,000) = 24,480$ ✓

9) Grandma has decided it's a good time to move part of her stock investment into bonds to reduce her risk. She's asked your help in redistributing her $720,000 between bonds which will earn 4% next year and stocks, which she predicts will earn 2.5% next year. If she needs her investments to bring in $24,480 in interest (pretax) for the year, how should her investments be redistributed? (Round your answers to the nearest dollar, **you must use a system of equations to answer the question**, and you need to answer the question in a useful English sentence.)

She should put $ 432,000 into Bonds

" " " $ 288,000 " Stocks

720,000 − 432,000

total investment = $ in Bonds + $ in Stocks

720,000 = x + y

total interest = Bond interest + Stock interest

24,480 = 0.04(x) + 0.025(y)

$x + y = 720,000$

so

$y = 720,000 - x$

and

$24,480 = 0.04x + 0.025(720,000 - x)$

$24,480 = 0.04x + 18,000 - 0.025x$

$24,480 = 0.015x + 18000$

$6480 = 0.015x$

$432,000 = x$