INTERMEDIATE ALGEBRA EXAM 4 TR NAME _____

SHOW ALL WORK ON THIS TEST OR ON SEPARATE PAPER. Circle answers.
TURN IN ALL WORKSHEETS. CALCULATORS ARE REQUIRED ON THIS TEST.

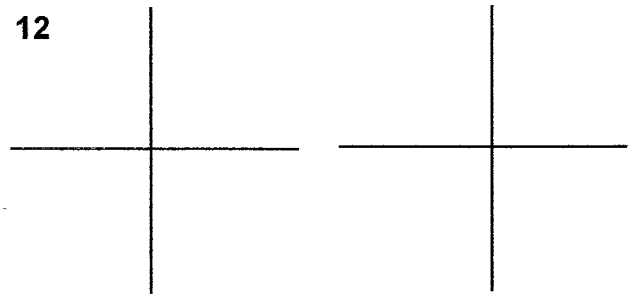
1. Graph the equations:

a) $-3X + 2Y = 12$

X-int = ____
Y-int = ____
slope = ____

b) $Y = \frac{3}{2}X + 6$

Y-int = ____
Slope = ____



2. Given the points (-2, -1) and (4, 3), find:
   a) distance b) slope c) midpoint

3 Find the slope of a line that
a) is parallel to X + 5Y = 4.

b) is perpendicular to X + 5Y = 4.

4. Find the equation of the line (in y=mX+b form) passing through (-4, 2) and (6, 8).

5. Find the equation of the line (in y=mx+b form) passing through (-4, 2) and perpendicular to Y = 3x - 4.

In 6 - 9, solve the systems of equations (Show ALL work using methods from algebra):

6. $5X - 3Y = 38$
   $X + Y = -2$

7. $7X - 3Y = 5$
   $6X + 2Y = -2$

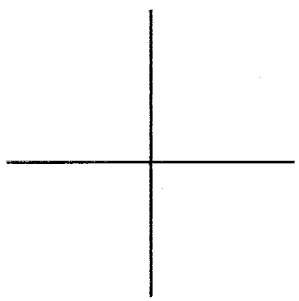
8. $X + Y = 5$
   $Y = -X + 5$

9. $6X + 5Y = -2$
   $Y = -3X + 14$

10. Graph the <u>intersection</u> of the inequalities:

$2X - Y \leq -2$

$Y < -X + 3$



11. Find the slope and the Y-intercept for $3X - 5Y = 2$

12. If $f(X) = 3X - 4$ and $g(x) = x^2 - 4x + 5$

a) $f(0) =$ b) $g(0) =$

c) $f(-2) =$ d) $g(-2) =$

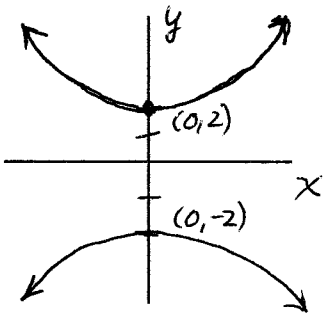
e) $f(5Y) =$ f) $g(\text{Junk}) =$

13. Find the domain (give interval notation when appropriate):

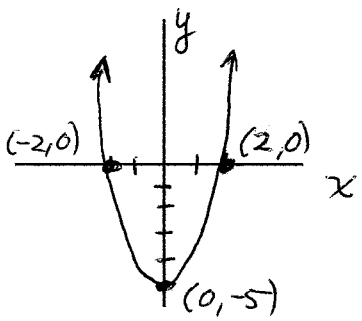
a) $Y = \dfrac{X - 6}{X^2 + 3X - 10}$ b) $Y = X^2 - 9$ c) $Y = \sqrt{6 - X}$

14. Find the domain and range of each of the following graphs. Determine whether each is a function or not a function.

A)



B)



Function? _____ Function? _____

Domain: _____ Domain: _____

Range: _____ Range: _____

Intermediate Algebra EXAM 4TR* Solutions

1a) $-3x+2y=12$

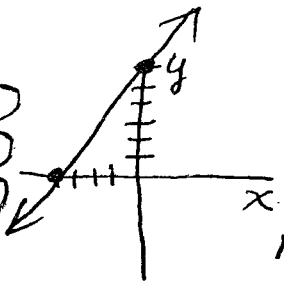
x	y
0	6
-4	0

$x\text{int}=-4$, $y\text{int}=6$

$2y=3x+12$

$y=\frac{3}{2}x+6$

$m=\frac{3}{2}$



b) $y=\frac{3}{2}x+6$

$y\text{int}=6$

$m=\frac{3}{2}$

Same Line

Same Graph

2. $(-2,-1)$ $(4,3)$

a) $d=\sqrt{6^2+4^2}$

$=\sqrt{36+16}$

$=\sqrt{52}$

$=2\sqrt{13}$ or 7.21

b) $m=\frac{y_2-y_1}{x_2-x_1}$

$=\frac{3-(-1)}{4-(-2)}=\frac{4}{6}$

$=\frac{2}{3}$

c) $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$=\left(\frac{-2+4}{2}, \frac{-1+3}{2}\right)$

$(1,1)$

3. a) $x+5y=4$

$5y=-x+4$

$y=-\frac{1}{5}x+\frac{4}{5}$

$m=-\frac{1}{5}$ $m_{parallel}=-\frac{1}{5}$

b) $m_\perp=\frac{5}{1}$ or 5

4. $m=\frac{8-2}{6-(-4)}=\frac{6}{10}=\frac{3}{5}$

$y=mx+b$

$8=\frac{3}{5}(6)+b$

$40=18+5b$

$22=5b$

$b=\frac{22}{5}$

$y=\frac{3}{5}x+\frac{22}{5}$

5. $y=3x-4$ $(-4,2)$

$m=3$ $m_\perp=-\frac{1}{3}$

$y=mx+b$

$2=\left(-\frac{1}{3}\right)(-4)+b$

$2=\frac{4}{3}+b$

$6=4+3b$

$2=3b$ $b=\frac{2}{3}$

$y=-\frac{1}{3}x+\frac{2}{3}$

6. $5x-3y=38$

$3(x+y=-2)$

$5x-3y=38$

$3x+3y=-6$

$8x=32$

$x=4$

$5(4)-3y=38$

$20-3y=38$

$-3y=18$

$y=-6$

Ch: $x+y=-2$

$4+(-6)=-2$ ✓

7. $2(7x-3y=5)$

$3(-6x+2y=-2)$

$14x-6y=10$

$-18x+6y=-6$

$-4x=4$

$x=-1$

$-7-3y=5$

$-3y=12$

$y=-4$

Ch: $-6x+2y=-2$

$(-6)(-1)+2(-4)=-2$

$6-8=-2$ ✓

8. $x+y=5$

$y=-x+5$

$x+(-x+5)=5$

$5=5$

Same Line

9. $6x+5y=-2$

$y=-3x+14$

$6x+5(-3x+14)=-2$

$6x-15x+70=-2$

$-9x=-72$

$x=8$

$y=-3x+14$

$=-24+14$

$y=-10$

Ch: $6x+5y=-2$

$48-50=-2$

10. $2x-y\leq 2$

x	y
0	2
-1	0

Solid Line

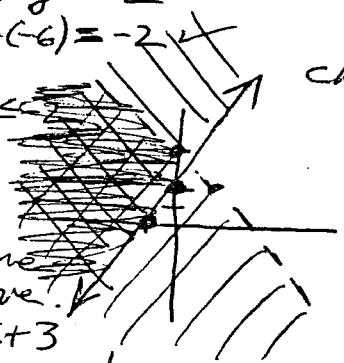
Shade Above

$y\leq -x+3$

$y\text{int}=3$ $m=-\frac{1}{1}$

Dotted Line

Shade Below



11. $3x-5y=2$

$\frac{-5y}{-5}=\frac{-3x}{-5}+\frac{2}{-5}$

$y=\frac{3}{5}x-\frac{2}{5}$

$m=\frac{3}{5}$ $y\text{int}=-\frac{2}{5}$

12. $f(x)=3x-4$ $g(x)=x^2-4x+5$

a) $f(0)=-4$

b) $g(0)=5$

c) $f(-2)=-6-4$

$=-10$

d) $g(-2)=$

$=(-2)^2-4(-2)+5$

e) $f(5y)=3(5y)-4$

$=15y-4$

$=4+8+5$

$=17$

f) $g(-2y)$

$=(-2y)^2-4(-2y)+5$

$=4y^2+8y+5$

13. a) $y=\frac{x-5}{x+2}$

$D: x+2\neq 0$

All $x\neq -2$

b) $y=x^2-9$

$D=$ All Reals

or $(-\infty,\infty)$

c) $y=\sqrt{6-x}$

$D: 6-x\geq 0$

$-x\geq -6$

$x\leq 6$

$(-\infty,6]$

14. A) F? No

D: $(-\infty,\infty)$

R: $(-\infty,-2]\cup[2,\infty)$

B) F? Yes

D: $(-\infty,\infty)$

R: $[-5,\infty)$