Name: _____ KEY

Math 10
Review for Linear Equations Retest

1. Calculate the x and y intercepts of $3x-2y-24=0$

↓ means $y=0$ ↳ means $x=0$

$3x-2y-24=0$

$3x-2(0)-24=0$

$3x=24$

$x=8$

∴ x-int is $(8,0)$

$3x-2y-24=0$

$3(0)-2y-24=0$

$-2y-24=0$

$-2y=24$

$y=-12$

∴ y-int is $(0,-12)$

2. Rewrite the equation $y-2=-\frac{3}{4}(x+5)$ into

a) slope-intercept form → $y=mx+b$

$y-2=-\frac{3}{4}(x+5)$

$y-2=-\frac{3}{4}x-\frac{15}{4}$

$+2 \quad +2$

$y=-\frac{3}{4}x-\frac{15}{4}+\frac{8}{4}$

$y=-\frac{3}{4}x-\frac{7}{4}$

b) general form → $Ax+By+C=0$

$\left[y=-\frac{3}{4}x-\frac{7}{4}\right]4$

$4y=-3x-7$

$3x+4y+7=0$

3. $(-10,8)$ and $(-12,-19)$ are both points on a line. Write 2 possible equations using slope-point form.

$x_1\ y_1 \quad x_2\ y_2$

$m=\frac{-19-8}{-12-(-10)}=\frac{-27}{-2}$

$m=\frac{27}{2}$

Using pt $(-10,8)$ ↳ $y-y_1=m(x-x_1)$

$y-y_1=m(x-x_1)$

$y-8=\frac{27}{2}(x+10)$

Using pt $(-12,-19)$

$y+19=\frac{27}{2}(x+12)$

4. What is the equation of the line that is perpendicular to $2x-y=5$ and passes through $(-4,1)$?
Write your answer in slope-intercept form.

↓ $y=mx+b$

↗ $m_\perp=?$ ↑ point

$2x-y=5$

$2x-5=y$

↑ m

∴ $m_\perp=-\frac{1}{2}$

$y-y_1=m(x-x_1)$

$y-1=-\frac{1}{2}(x+4)$

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

$+1 \quad +1$

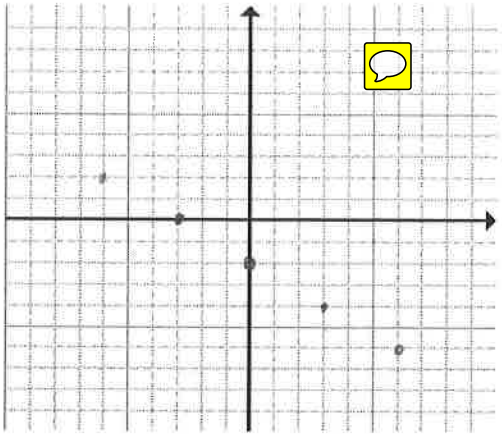
$y=-\frac{1}{2}x-1$

5. Graph: $-2x-3y=6$

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

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

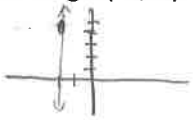
m, b



6. Write the equation of the line that is:

a) parallel to the y-axis and passes through (-2, 5)

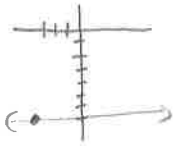
Visualize :



$x=-2$

b) parallel to the x-axis and passes through (-3, -7)

visualize:



$y=-7$

c) perpendicular to the line $-3x+6y=21$ and has the same x-intercept as the line $y=9x-6$

$m_\perp = ?$

$-3x+6y=21$

$\frac{6y=3x+21}{6}$

$y=\frac{1}{2}x+\frac{7}{2}$

$m=\frac{1}{2}$ $m_\perp=-2$

↳ $(x,0)$ → $0=9x-6$

$6=9x$

$\frac{6}{9}=x$

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

$\therefore y=mx+b$

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

7. A line passes through the points $(-2,8)$ and $(8,-10)$. What is the equation of this line in

a) slope-intercept form?

$m=\frac{-10-8}{8-(-2)}=\frac{-18}{10}=\frac{-9}{5}$

Using (b) $y-8=-\frac{9}{5}(x+2)$

$y-8=-\frac{9}{5}x-\frac{18}{5}$ $+8$ $+8$

$y=-\frac{9}{5}x+\frac{22}{5}$

b) point-slope form?

$y-y_1=m(x-x_1)$

$y-8=-\frac{9}{5}(x+2)$ //

or

$y+10=-\frac{9}{5}(x-8)$ //

c) standard form?

Using (a) $\left[y=-\frac{9}{5}x+\frac{22}{5}\right]5$

$5y=-9x+22$

$9x+5y=22$

d) general form?

Using (c) $9x+5y=22$

$9x+5y-22=0$