NAME DO NOW

PER..... DATE.....Algebra 2

PRACTICE TEST CHAP 2

For problems 1-5, solve.

1) $4(3x+5)=12-2x$

$12x+20=12-2x$

$14x=-8$

$x=-\frac{8}{14}=\boxed{-\frac{4}{7}}$

2) $3x-5(x+3)=16-4x$

$3x-5x-15=16-4x$

$-2x-15=16-4x$

$2x=31$

$x=\boxed{\frac{31}{2}}$

3) $\frac{13-5x}{8}\geq -4$

$13-5x\geq -32$

$-5x\geq -45$

$\boxed{x\leq 9}$

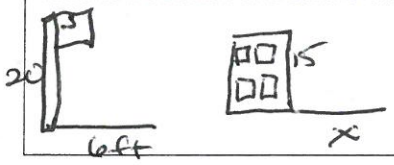
4) $\frac{4}{5-2x}=\frac{3}{3x-1}$

$4(3x-1)=3(5-2x)$

$12x-4=15-6x$

$18x=19 \Rightarrow \boxed{x=\frac{19}{18}}$

5) If a flagpole that is 20 feet tall casts a 6 foot shadow, how long a shadow would a building that is 15 feet tall cast at the same time of day?



$\frac{20}{6}=\frac{15}{x}$

$20x=90$

$x=\frac{90}{20}=4\frac{1}{2}$

BUILDING SHADOW IS $4\frac{1}{2}$ FT.

6) Find x and y intercepts. Then graph using intercepts. $-6x+9y=-18$

x int

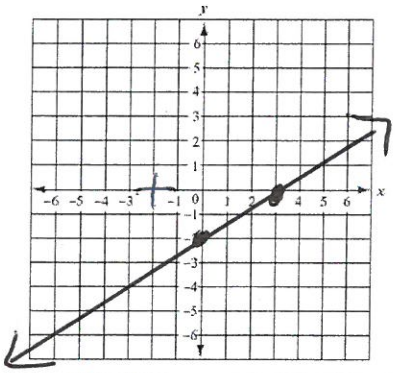
$-6x=-18$

$x=3$

y int

$9y=-18$

$y=-2$



7) Write in slope intercept form. Then, graph.

$2x-3y=-9$

$-2x \quad -2x$

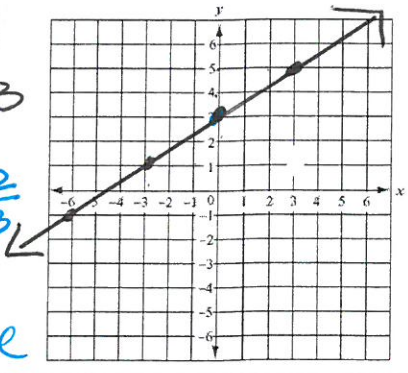
$-3y=-2x-9$

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

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

$b=3$

Start here

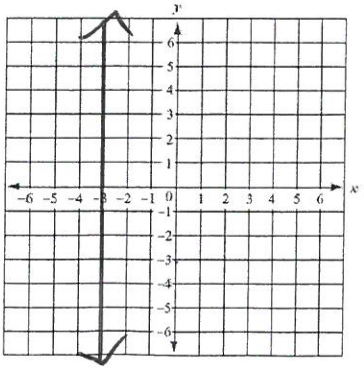


8) Graph the equation. What is the slope?

$-3=x$

NO SLOPE

UNDEFINED SLOPE

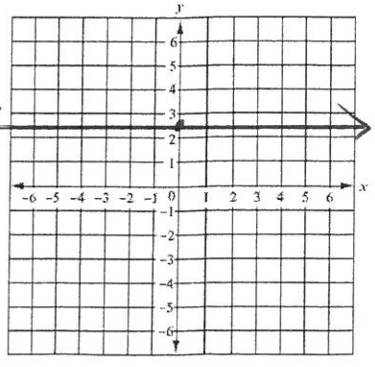


9) Graph the equation. What is the slope?

$y=\frac{5}{2}$

ZERO SLOPE

$m=0$



y = mx + b

For problems 10-13, write the equation of the line described in slope-intercept form.

10) passing through $(4,6)$ with slope $\frac{1}{2}$ = m

x, y

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

$y - 6 = \frac{1}{2}x - 2$

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

11) passing through $(2,6)$ and $(3,9)$

$m = \frac{9-6}{3-2} = \frac{3}{1} = 3$

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

$y - 6 = 3x - 6$

$y = 3x$

12) through $(4,-2)$ & parallel to $y = \frac{3}{2}x + 9$

x, y

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

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

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

$-2 \quad -2$

$y = \frac{3}{2}x - 8$

13) through $(-3,4)$ & perpendicular to $y = \frac{3}{2}x + 9$

x, y

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

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

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

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

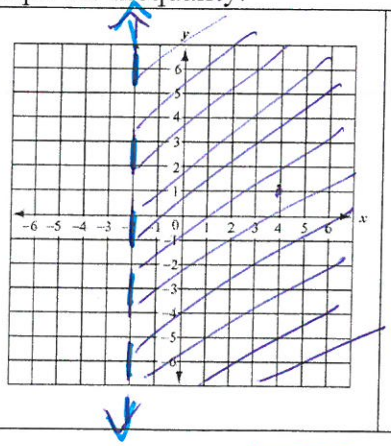
For problems 14-15, graph the inequality.

14) $x > -2$

↑ DASHED BOUNDARY

Check (0,0)

$0 > -2$ T



15) $6x - 2y > 8$

$-2y > -6x + 8$

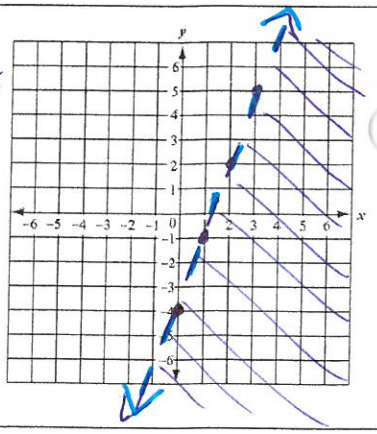
$y < 3x - 4$

↑ DASHED

(0,0)

$0 - 0 > 8$

$0 > 8$ F



Let $g(x)$ be the indicated transformation of $f(x) = x$. Write the rule for $g(x)$.

16) horizontal translation 8 units right

$g(x) = x - 8$

$g(x) = f(x - h)$

$h = 8$

17) vertical translation 5 units up (1) followed by a vertical stretch by a factor of 3 (2)

$k(x) = x + 5$

$g(x) = 3(k(x))$

$g(x) = 3(x + 5)$

$g(x) = 3x + 15$

18) horizontal shift 12 units right (1) followed by a reflection across the y-axis (1)

h = 12

$k(x) = x - 12$

$g(x) = (-x) - 12$

$g(x) = -x - 12$

For problems 19-20, solve.

19) $\left|\frac{x-6}{5}\right| = 12$

$\frac{x-6}{5} = 12$ OR $\frac{x-6}{5} = -12$

$x-6 = 60$ $\quad$ $x-6 = -60$

$x = 66$ $\quad$ $x = -54$

$x = 66$ OR -54

20) $4|3x-8|+16 = 2$

÷4 (0) $\quad$ −16 (+)

$\frac{4|3x-8|}{4} = \frac{-14}{4}$ → DISTANCE

$|3x-8| = -\frac{7}{2}$

NO SOLUTION

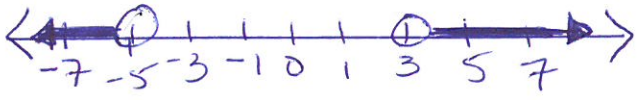
For problems 21-24, solve. Then graph the solution set.

21) $3x+6>15$ or $5x+13<-12$

$3x > 9$ $\quad$ $5x < -25$

$x > 3$ $\quad$ $x < -5$

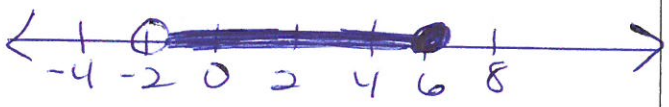
$\{x \mid x < -5 \cup x > 3\}$



22) $3x \le 18$ and $x+4>2$

$x \le 6$ $\quad$ $x > -2$

$\{x \mid x > -2 \cap x \le 6\}$



23) $|4x-8|<4$

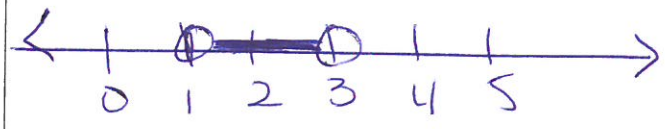
NEG

$4x-8 < 4$ AND $4x-8 > -4$

$4x < 12$ $\quad$ $4x > 4$

$x < 3$ $\quad$ $x > 1$

* $\{x \mid x > 1 \cap x < 3\}$



24) $|5x+10| \ge 30$

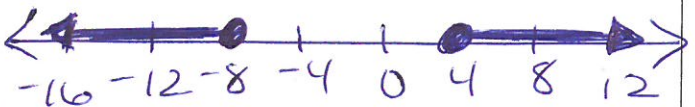
NEG

$5x+10 \ge 30$ OR $5x+10 \le -30$

$5x \ge 20$ $\quad$ $5x \le -40$

$x \ge 4$ $\quad$ $x \le -8$

* $\{x \mid x \le -8 \cup x \ge 4\}$



For problems 25-26, translate $f(x) = |x|$ so that the vertex is at the given point.

25) $(-5,7)$

$g(x) = |x+5| + 7$

26) $(6,-9)$

$g(x) = |x-6| - 9$

$g(x) = |x-h| + k$

Vertex (h,k)

For problems 27-28, perform each transformation. Then, graph.

27) $f(x)=|x-4|+1$ reflected across y-axis

vertex (4, 1)

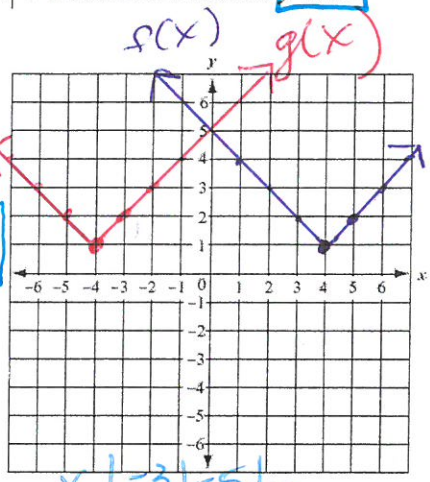
$g(x)=|-x-4|+1$

$-x-4=0$

$-x=4$

$x=-4$

vertex $(-4,1)$



x	-3	-5
y	2	2

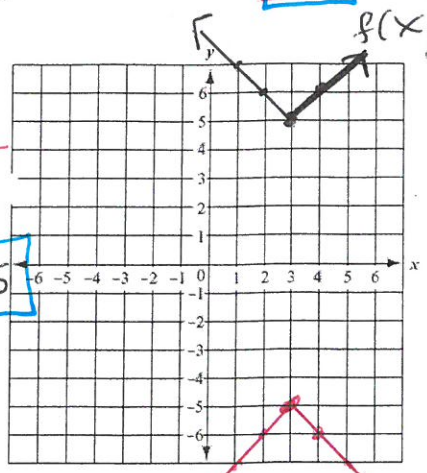
28) $f(x)=|x-3|+5$ reflected across x-axis

vertex (3, 5)

$g(x)=-f(x)$

$g(x)=-|x-3|-5$

vertex (3, -5)



x	4	2	0	6
y	-6	-6	-8	-8

For 29, find $g(x)$, the transformed function.

29) $f(x)=|2x|-3$, stretched horizontally by a factor of 3 and then reflected across the x-axis.

$k(x)=f\left(\frac{1}{3}x\right)=\left|2\cdot\frac{1}{3}x\right|-3=\left|\frac{2}{3}x\right|-3$

$g(x)=-k(x)=-\left|\frac{2}{3}x\right|+3$