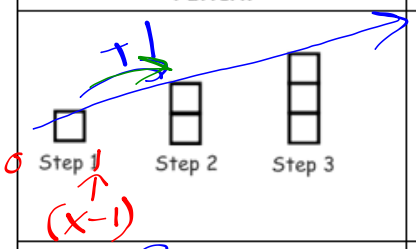
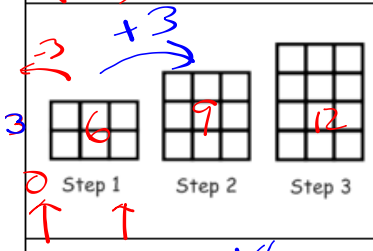
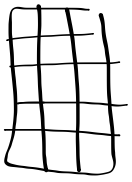
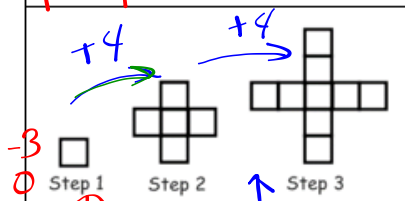
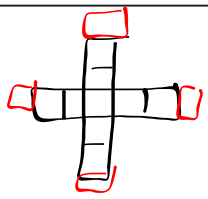
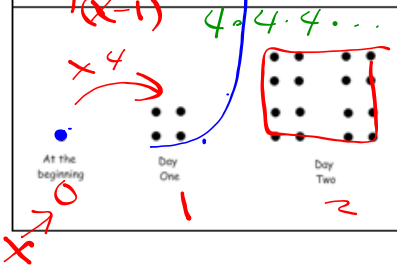
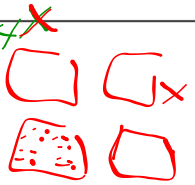
Pattern	Next Figure	Table of Values	Formula	Type?
		Step # (n): 0, 1, 2, 3 — # of Squares f(n): 1, 2, 3	Recursive: $f(x)=f(x-1)+1$, $f(1)=1$ Explicit: $y=1(x-1)+1$, $y=x$	Arithmetic ✓ Geometric ✗
		Step # (n): 0, 1, 2, 3, 4 — # of Squares f(n): 3, 6, 9, 12, 15	Recursive: $f(x)=f(x-1)+3$, $f(1)=6$ Explicit: $y=3(x-1)+6$, $3x-3+6$, $y=3x+3$	Arithmetic ✓ Geometric ____
		Step # (n): 0, 1, 2, 3, 4 — # of Squares f(n): −3, 1, 5, 9, 13	Recursive: $f(x)=f(x-1)+4$, $f(1)=1$ Explicit: $y=4(x-1)+1$ change begin, $4x-4+1$, $y=4x-3$	Arithmetic ✗ Geometric ____
		Step # (n): 0, 1, 2, 3 — # of Squares f(n): 1, 4, 16, 64	Recursive: $f(x)=f(x-1)\times 4$, $f(0)=1$ Explicit: $y=1(4)^x$	Arithmetic ____ Geometric ✓

Final Review

Period___

Find the following information for the given Arthimatic sequences.

1) 36, 45, 54, 63, ...

common difference= 9

explicit formula= $y = 9(x) + 27$ or $9(x-1) + 36$

52nd term in sequence= $9(52) + 27 = 495$

2) 32, 24, 16, 8, ...

common difference= -8

explicit formula= $y = -8(x-1) + 32$ or $y = 8x + 40$

52nd term in sequence= $8(52) + 40 = 456$

Find the following information for the given Geometric sequences.

3) 4, 12, 36, 108, ...

common ratio= $\times 3$

explicit formula= $y = 4(3)^{x-1}$

8th term in sequence= $4(3)^{8-1} = 4(3)^7 = 8{,}748$

4) 2, 8, 32, 128, ...

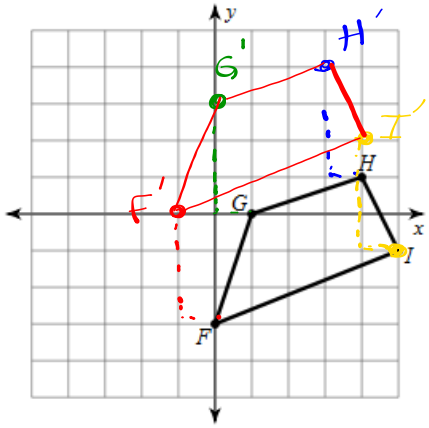
common ratio= 4

explicit formula= $y = 2(4)^{x-1}$

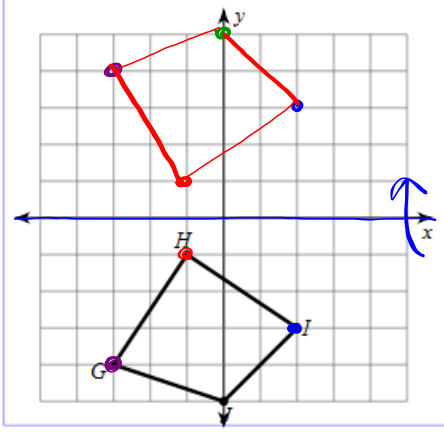
8th term in sequence= $2(4)^7 = 32{,}768$

Graph the image of the figure using the transformation given.

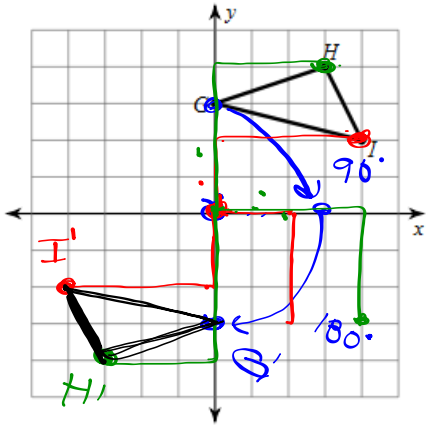
5) translation: 1 unit left and 3 units up



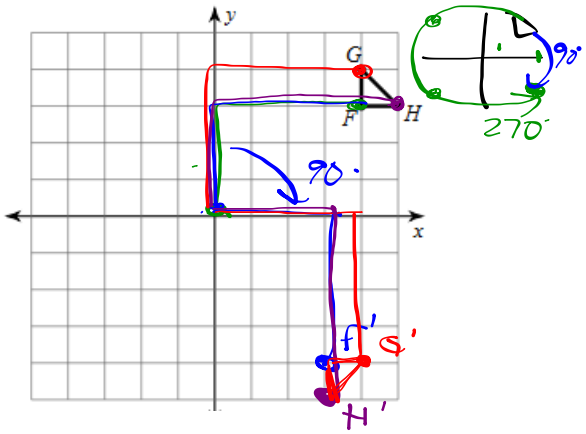
6) reflection across the x-axis



7) rotation 180° about the origin



8) rotation 270° counterclockwise about the origin



Solve each system by substitution.

9) $y = -3x + 15$
$y = x + 3$

$-3x + 15 = x + 3$
$+3x \quad +3x$
$15 = 4x + 3$
$-3 \quad -3$
$12 = 4x$
$4 \quad 4$
$x = 3$

$y = 3 + 3 = 6$
$y = 6$

$(3, 6)$

10) $-4x - 6y = 12$
$y = -3x - 16$

$y = -3(-6) - 16$
$y = 18 - 16$
$y = 2$

$(-6, 2)$

$-4x - 6(-3x - 16) = 12$
$-4x + 18x + 96 = 12$
$14x + 96 = 12$
$-96 \quad -96$
$\frac{14x}{14} = \frac{-84}{14}$
$x = -6$

Solve each system by elimination.

11) $5x + 3y = -7$
$+ (-5x + 5y = -25)$

$8y = -32$
$\frac{8y}{8} = \frac{-32}{8}$
$y = -4$

$5x + 3(-4) = -7$
$5x - 12 = -7$
$+12 \quad +12$
$\frac{5x}{5} = \frac{5}{5}$
$x = 1$

$(1, -4)$

12) $8x + 2y = -28$
$-(8x + 4y = 8)$

$-2y = -20$
$\frac{-2y}{-2} = \frac{-20}{-2}$
$y = 10$

$(-6, 10)$

$8x + 4(10) = -8$
$8x + 40 = -8$
$-40 \quad -40$
$\frac{8x}{8} = \frac{-48}{8}$
$x = -6$

13) $2(8x + 3y = 23) \rightarrow 16x + 6y = 46$
$-5x - 6y = -2$

$+ (-5x - 6y = -2)$
$\frac{11x}{11} = \frac{44}{11}$
$x = 4$

$8(4) + 3y = 23$
$32 + 3y = 23$
$-32 \quad -32$
$\frac{3y}{3} = \frac{-9}{3}$
$y = -3$

$(4, -3)$

14) $5(2x + 4y = 12) \rightarrow 10x + 20y = 60$
$2(5x + 9y = 24) \rightarrow -10x - 18y = -48$

$\frac{2y}{2} = \frac{12}{2}$
$y = 6$

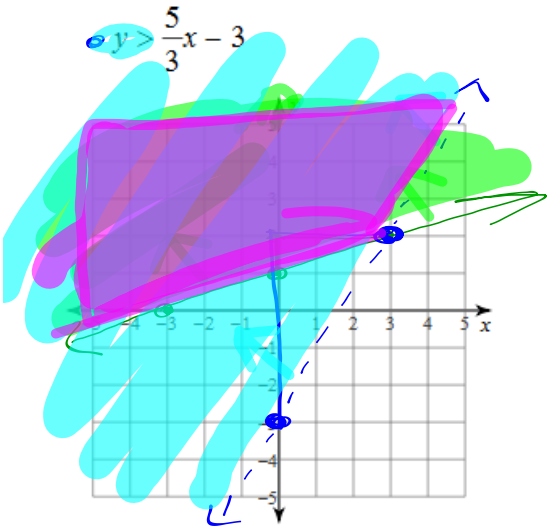
$2x + 4(6) = 12$
$2x + 24 = 12$
$-24 \quad -24$
$\frac{2x}{2} = \frac{-12}{2}$
$x = -6$

$(-6, 6)$

Sketch the solution to each system of inequalities.

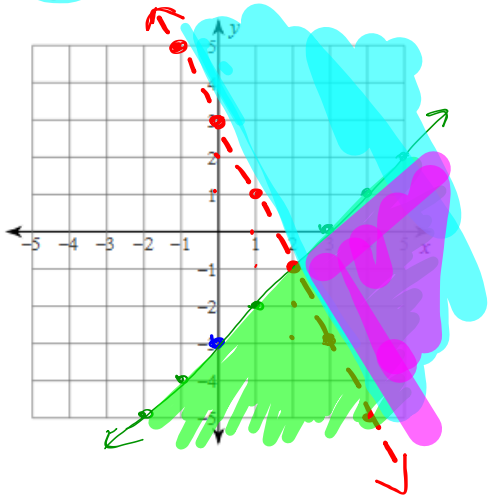
15) $y \geq \frac{1}{3}x + 1$

$y > \frac{5}{3}x - 3$

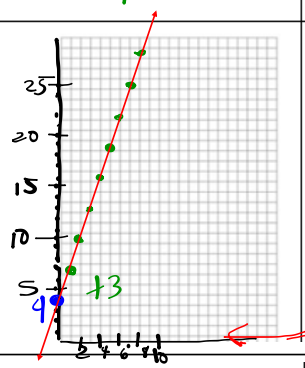
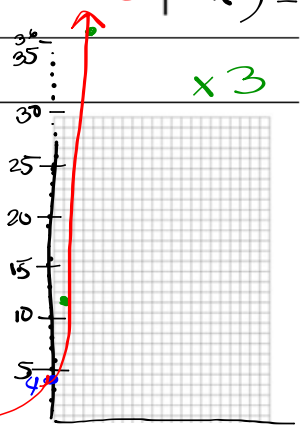


16) $y \leq x - 3$

$y > -2x + 3$



17.

	$y = 4 + 3x$	$y = 4(3^x)$
Type of growth	linear/exponential circle one	linear/exponential circle one
What kind of sequence corresponds to each model?	arithmetic/geometric circle one	arithmetic/geometric circle one
Make a table of values	x | y 0 | 4+3(0)=4 1 | 4+3(1)=7 (+3) 2 | 4+3(2)=10 3 | 13	x | y 0 | $4(3)^0=4$ 1 | $4(3)^1=12$ 2 | $4(3)^2=36$ 3 | $4(3)^3=108$ (×3)
Find the rate of change	+3	×3
Graph each equation.		
Find the y-intercept for each function	4	4
Write the recursive or the explicit form of the equation.	$f(x)=f(x-1)+3$ (change) $f(0)=4$ (begin)	$f(x)=f(x-1)\times 3$ $f(0)=4$

Write the equation of the line in slope-intercept form given the following information.

$y = mx + b$

18) $m = \frac{5}{3}$, $b = -3$

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

19) $2x + 7y = 14$

$-2x \quad -2x$

$\frac{7y}{7} = \frac{14 - 2x}{7}$

$y = 2 - \frac{2}{7}x$

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

20) $y - 5 = 4(x - 3)$

$+5 \quad 4x - 12 \quad +5$

$y = 4x - 7$

21) $m = 1$, $(-2, -3)$

$x+2$

$y = 1(x+2) + 3$

$= 1x + 2 + 3$

$y = x + 5$

22) $(0, 3)$, $(-4, 4)$

$-4x$ y

$\frac{1 \text{ rise}}{4 \text{ run}}$

$y = -\frac{1}{4}x + 3$

$m = -\frac{1}{4}$

23) $(-5, -3)$, $(0, -3)$

0

5

flat line! $y = 0$

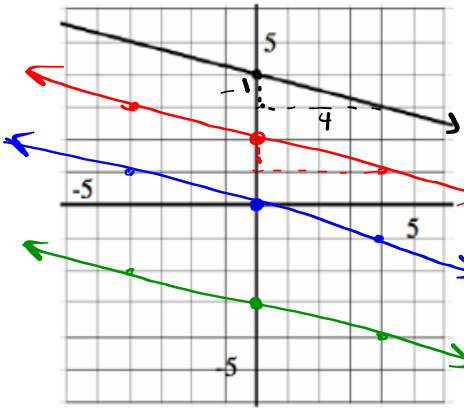
$y = 0x - 3$

$y = -3$

24)

Graph a line *parallel* to the given line.

Lots of answers!



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

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

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

$y = -\frac{1}{4}x - 3$

any of these are parallel

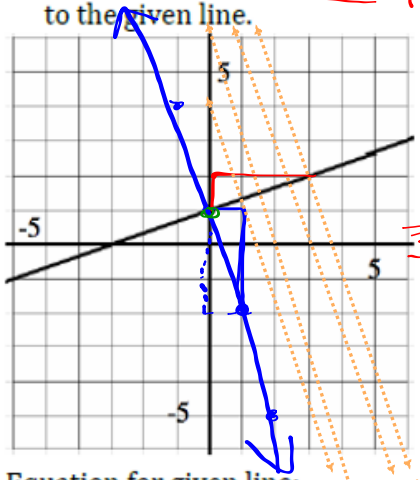
Equation for given line:

Equation for new line:

* or * or * or . . .

25)

Graph a line *perpendicular* to the given line.



$\frac{1}{3} \rightarrow \frac{-3}{1}$

Equation for given line:

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

Equation for new line:

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

many answers! pick one! write the equation.

In-class next time

26) Find the following **key features** of the graph:

a) domain: (JOE) $(-\infty, \infty)$

b) range: (y's) $(-\infty, \infty)$

c) x-intercept(s): $-3, 0, 3$

d) y-intercept(s): 0

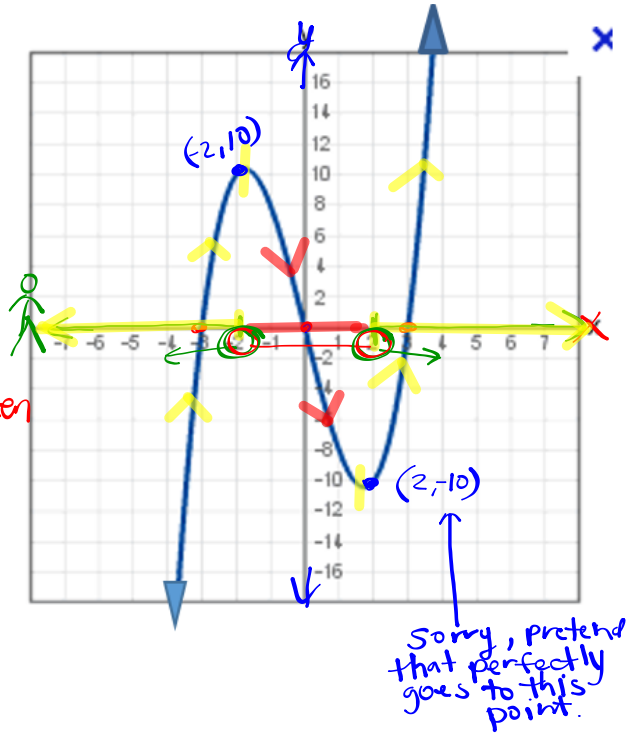
e) relative maximum/minimum:

f) Identify the interval(s) of: * always, between which x's!

increasing: $(-\infty, -2) \cup (2, \infty)$

decreasing: $(-2, 2)$

constant: none



27) Find the following **key features** of the graph:

a) domain: (X, Joe) $(-\infty, \infty)$

b) range: $[-6, \infty)$ "can go off graph forever up" $+\infty$

c) x-intercept(s): -9 and 2

d) y-intercept(s): -6

e) relative maximum/minimum: "can see on graph" max 7 / min $= 6$

f) Identify the interval(s) of:

increasing: $(0, 4)$

decreasing: $(-\infty, -3)$

constant: $(-3, 0) \cup (4, \infty)$