1. Solve the inequality: $16 - 3x > 10$

   Write the solution in interval notation.

2. Given $f(x) = 3x^2 + 4x - 2$ find the following:

   a) $f(0) =$ _____

   b) $f(-x) =$ _____

   c) $f(x+1) =$ _____

   d) $f(x+h) =$ _____

3. Find the domain of the function $f(x) = \sqrt{4x - 20}$. Use interval notation.

4. For the given functions find the following:

   $f(x) = 4x + 7$ $g(x) = 8x - 1$

   a) $(f + g)(x) =$ _____

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

   c) $(f - g)(3) =$ _____

   d) $(f \cdot g)(2) =$ _____

5. Find and simplify the difference quotient of f given: $\frac{f(x+h)-f(x)}{h}$, $h \neq 0$

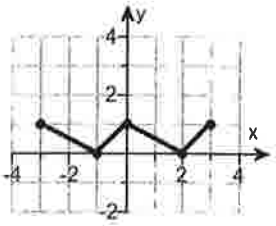
   $f(x) = x^2 - 8x + 3$

6. Given $f(x) = x^2 - 2x + 2$, find the value(s) for x such that $f(x) = 17$.

7. Using the given graph of the function f, find its domain and range.

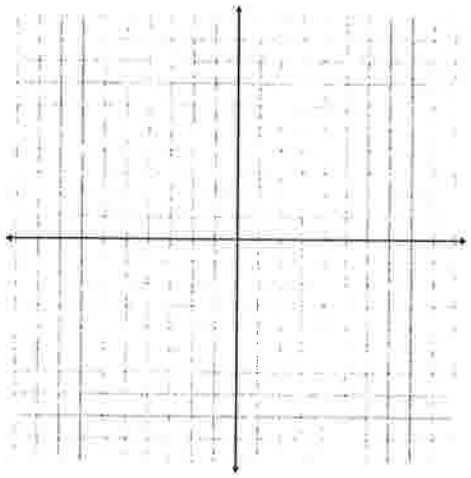
   Domain: _____

   Range: _____



8. The function f is defined as follows: $f(x) = \begin{cases} -3x + 4 \text{ if } x < 2 \\ 2x - 1 \text{ if } x \geq 2 \end{cases}$

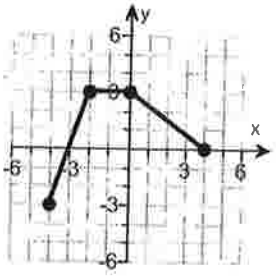
   Graph the function.



9. The graph of a function f is illustrated to the right. Use the graph of f and graph each of the following functions.

   a) $H(x) = f(x + 2) - 3$

   b) $G(x) = f(x) + 2$



10. Factor the given polynomial completely.

    $x^2 + 18x + 77$

11. Solve the equation: $(x - 8)(3x + 5) = 0$

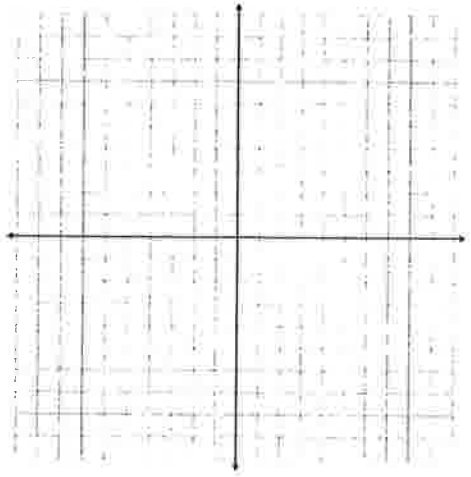
12. Find the zeros of the quadratic function by factoring: $g(x) = 3x^2 - 10x - 8$

13. Solve the quadratic equation by using the quadratic formula. Simplify your answer as much as possible.

$$x^2 + 6x = -4$$

14. Given the quadratic function $f(x) = x^2 - 4x + 3$ find the following and graph f.

a) the vertex



b) the y-intercept

c) the x-intercept(s)

15. Determine, without graphing, whether the given quadratic function has a maximum value or a minimum value and then find the value and where it occurs.

$f(x) = -2x^2 + 4x - 7$

16. Find a rational zero of the polynomial function and use it to find all of the zeros of the function.

$$f(x) = x^3 - 3x^2 - 25x - 21$$

17. Solve the equation: $3x^4 - 28x^3 + 81x^2 - 84x + 20 = 0$

18. Find the vertical and horizontal asymptotes, if any, for the following rational function.

$$R(x) = \frac{8x^2}{x^2 - 2x - 15}$$

19. Given the functions: $f(x) = 4x + 9$ and $g(x) = 2x - 5$, find the following

a) $(f \circ g)(x)$

b) $(g \circ f)(x)$

20. Given the functions: $f(x) = 3x + 3$ and $g(x) = x^2$, find the following

a) $(g \circ f)(x)$

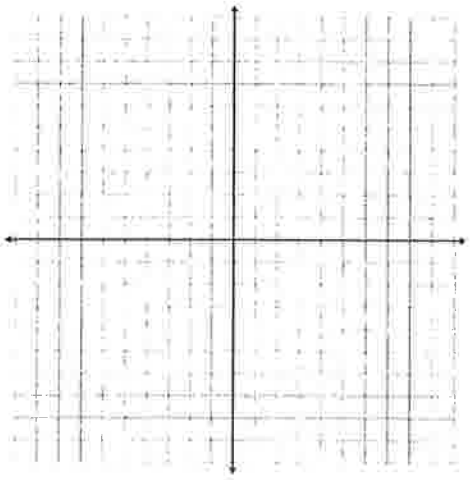
b) $(f \circ g)(-3)$

21) The function $f(x) = 6x - 3$ is one-to-one. Find the following and graph f and f^{-1}.

a) $f^{-1}(x) =$

b) Domain of f: Range of f:

c) Domain of f^{-1}: Range of f^{-1}:



22) Solve the equation: $64^{-x+52} = 128^{x}$

23) Solve the equation: $log_2(2x + 1) = 3$

24) Solve the equation: $log_4(5x) = 2$

25) Find the accumulated value of a \$400 investment after 4 years if interest is compounded quarterly at an annual rate of 5.2%.

26) How many years will it take for an investment of \$10,000 to grow to \$35,000?
Assume an interest rate of 9% compounded continuously.

27. Solve the system of equations by additon. If the system has no solution, say that it is inconsistent.

$$4x - 3y = -1$$
$$5x + y = 13$$

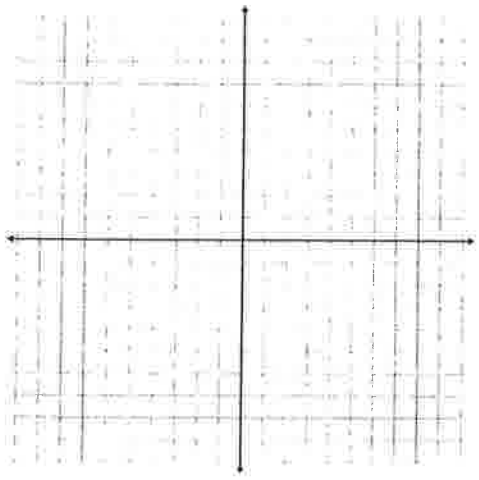
28. Solve the given system of equations using matrices. If the system has no solution, say that it is inconsistent.

$$x - 3y + 4z = 24$$
$$2x + y + z = 6$$
$$-2x + 3y - 3z = -22$$

29. Solve the radical equation: $\sqrt{5x - 1} = x - 3$

Be sure to check all solutions.

30. The quadratic function $f(x) = x^2 - 2x - 8$ has a vertex at (1 , -9), a y-intercept at (0, -8), and x-intercepts at (4, 0) and (-2, 0). Also, f(2) = -8. Sketch the graph of this quadratic function by plotting the 5 given points.



Solve

(1) $16 - 3x > 10$

$16 - 3x - 16 > 10 - 16$

$-3x > -6$

$\frac{-3x}{-3} < \frac{-6}{-3}$

divide by a negative and turn alligator around

$x < 2$

$(-\infty, 2)$

(2a) $f(x) = 3x^2 + 4x - 2$

$f(0) = 3(0)^2 + 4(0) - 2$

$f(0) = 3(0)(0) + 4(0) - 2$

$f(0) = 3(0) + 4(0) - 2$

$f(0) = 0 + 0 - 2$

$f(0) = 0 - 2$

$f(0) = -2$

(2b) $f(x) = 3x^2 + 4x - 2$

$f(-x) = 3(-x)^2 + 4(-x) - 2$

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

$f(-x) = 3(x^2) + 4(-x) - 2$

$f(-x) = 3x^2 - 4x - 2$

(2c) $f(x) = 3x^2 + 4x - 2$

$f(x+1) = 3(x+1)^2 + 4(x+1) - 2$

$f(x+1) = 3(x+1)(x+1) + 4(x+1) - 2$

$f(x+1) = 3(x^2 + 1x + 1x + 1) + 4(x+1) - 2$

$f(x+1) = 3(x^2 + 2x + 1) + 4(x+1) - 2$

$f(x+1) = 3x^2 + 6x + 3 + 4x + 4 - 2$

$f(x+1) = 3x^2 + 10x + 5$

(2d) $f(x) = 3x^2 + 4x - 2$

$f(x+h) = 3(x+h)^2 + 4(x+h) - 2$

$f(x+h) = 3(x+h)(x+h) + 4(x+h) - 2$

$f(x+h) = 3(x^2 + xh + xh + h^2) + 4(x+h) - 2$

$f(x+h) = 3(x^2 + 1xh + 1xh + h^2) + 4(x+h) - 2$

$f(x+h) = 3(x^2 + 2xh + h^2) + 4(x+h) - 2$

$f(x+h) = 3x^2 + 6xh + 3h^2 + 4x + 4h - 2$

③ find the domain

$f(x) = \sqrt{4x - 20}$

formula domain

$f(x) = \sqrt{Ax + B}$

$Ax + B \geq 0$

$4x - 20 \geq 0$

$4x - 20 + 20 \geq 0 + 20$

$4x \geq 20$

$\frac{4x}{4} \geq \frac{20}{4}$

$x \geq 5$

$[5, \infty)$

(4) a $f(x) = 4x + 7$ and $g(x) = 8x - 1$

$(f+g)(x) =$

$f(x) + g(x) =$

$(4x+7) + (8x-1) =$

$4x + 7 + 8x - 1 =$

$12x + 6 =$

---

(4) b $f(x) = 4x + 7$ and $g(x) = 8x - 1$

$(g-f)(x) =$

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

$(8x-1) - (4x+7) =$

$8x - 1 - 4x - 7 =$

$4x - 8 =$

---

(4) c $f(x) = 4x+7$ and $g(x) = 8x-1$

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

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

$(4x+7) - (8x-1) =$ ← 1st do this

$4x+7-8x+1 =$

$-4x+8$

$(f-g)(x) = -4x+8$ ← 2nd do this

$(f-g)(3) = -4(3)+8$

$(f-g)(3) = -12+8$

$(f-g)(3) = -4$

(4) (d) $f(x) = 4x+7$ and $g(x) = 8x-1$

$(f \cdot g)(x) =$

$f(x) \cdot g(x) =$

$(4x+7)(8x-1) =$

1st do this

$32x^2 - 4x + 56x - 7 =$

$32x^2 + 52x - 7 :$

2nd do this

$(f \cdot g)(x) = 32x^2 + 52x - 7$

$(f \cdot g)(2) = 32(2)^2 + 52(2) - 7$

$(f \cdot g)(2) = 32(2)(2) + 52(2) - 7$

$(f \cdot g)(2) = 32(4) + 52(2) - 7$

$(f \cdot g)(2) = 128 + 104 - 7$

$(f \cdot g)(2) = 232 - 7$

$(f \cdot g)(2) = 225$

(5.) $f(x) = x^2 - 8x + 3$

$$\frac{f(x+h) - f(x)}{h} =$$

$$\frac{((x+h)^2 - 8(x+h) + 3) - (x^2 - 8x + 3)}{h} =$$

$$\frac{(x+h)(x+h) - 8x - 8h + 3 - x^2 + 8x - 3}{h} =$$

$$\frac{x^2 + xh + xh + h^2 - 8x - 8h + 3 - x^2 + 8x - 3}{h} =$$

$$\frac{x^2 + 1xh + 1xh + h^2 - 8x - 8h + 3 - x^2 + 8x - 3}{h} =$$

$$\frac{2xh + h^2 - 8h}{h} =$$

$$\frac{2xh}{h} + \frac{h^2}{h} - \frac{8h}{h} =$$

$$2x + h - 8 =$$

(6) Given $f(x) = x^2 - 2x + 2$ find the values for x such that $f(x) = 17$

Let $x^2 - 2x + 2 = 17$

$x^2 - 2x + 2 - 17 = 17 - 17$

$x^2 - 2x - 15 = 0$

$(x + 3)(x - 5) = 0$

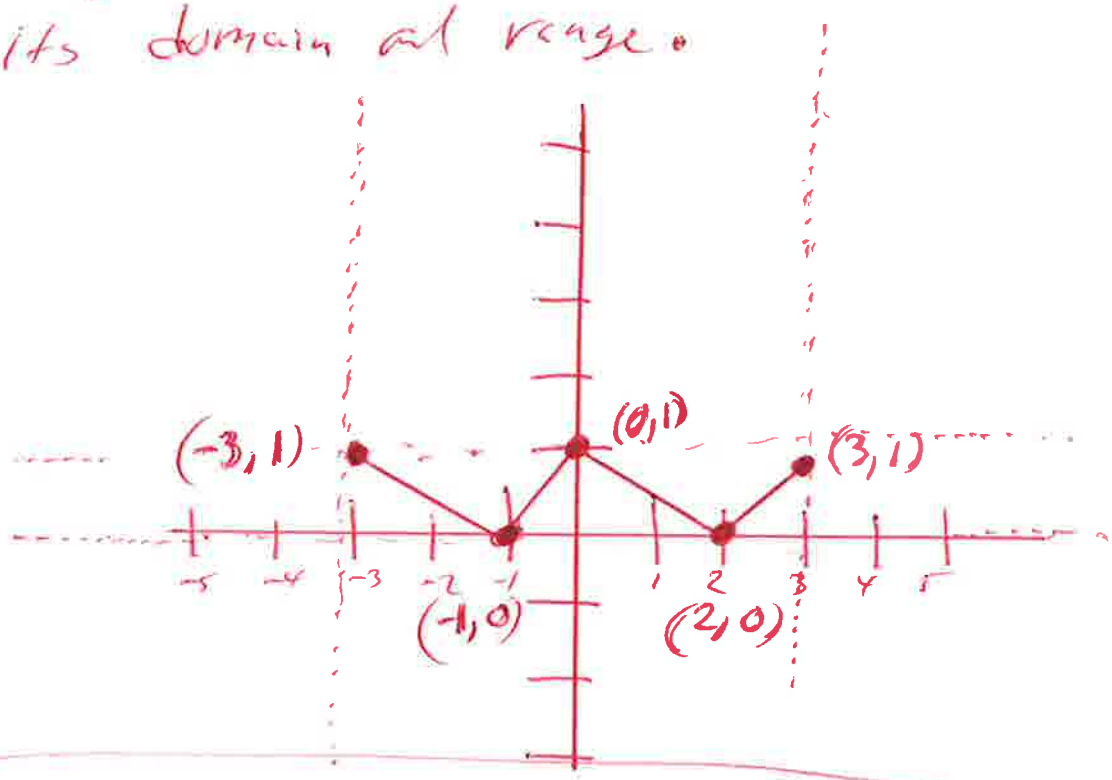
Let $x + 3 = 0$ OR $x - 5 = 0$

$x + 3 - 3 = 0 - 3$ OR $x - 5 + 5 = 0 + 5$

$x = -3$ or $x = 5$

Possible
15.1
3.5

7. Use the given graph of the function f, find its domain & range.

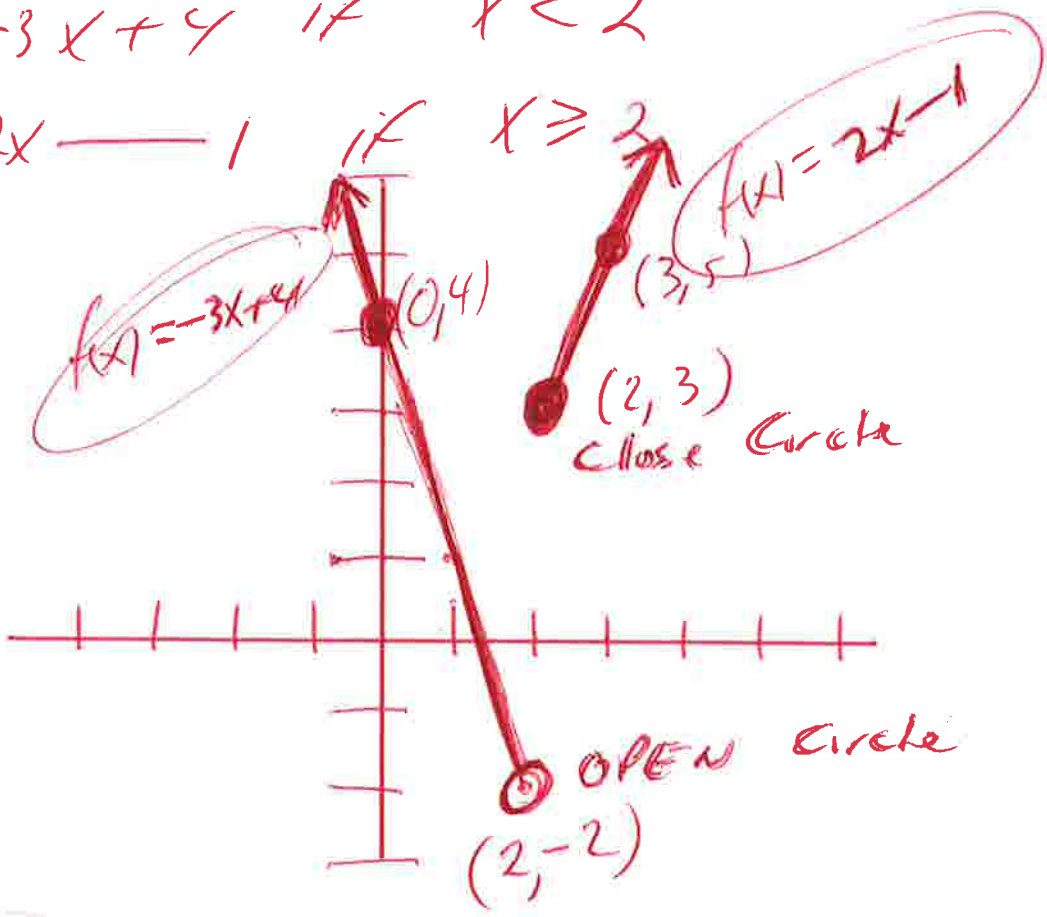


domain $= [-3, 3]$ ← [left, right]

range $= [0, 1]$ ← [bottom, top]

(8) Graph

$$f(x) = \begin{cases} -3x+4 & \text{if } x < 2 \\ 2x - 1 & \text{if } x \geq 2 \end{cases}$$



Window
X-Min = -12
X-Max = 12
Y-Min = -10
Y-Max = 10

Use Graphing Calculator

LIST
$Y_1 = -3X+4$ ÷ $(X<2)$ OPEN Circle

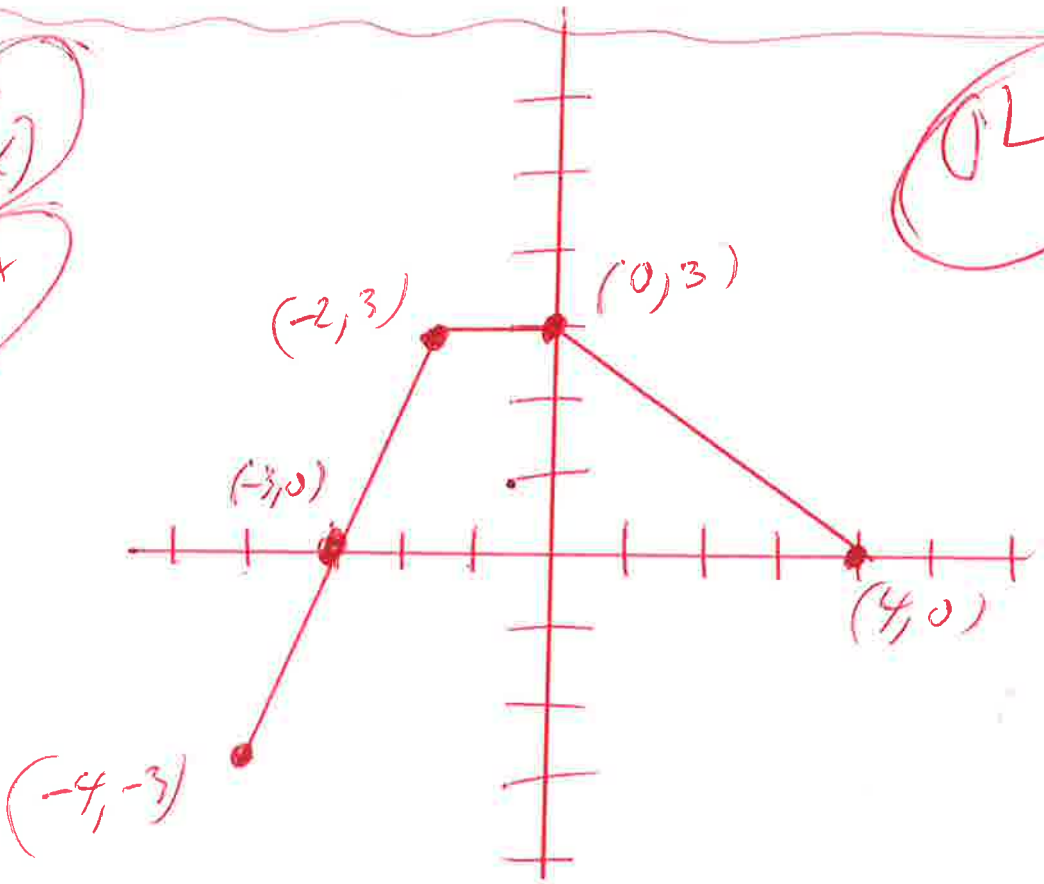
2ND MATH
BIG
$Y_2 = 2X - 1$ ÷ $(X \geq 2)$ Close Circle

9

f(x)

1st part

OLD

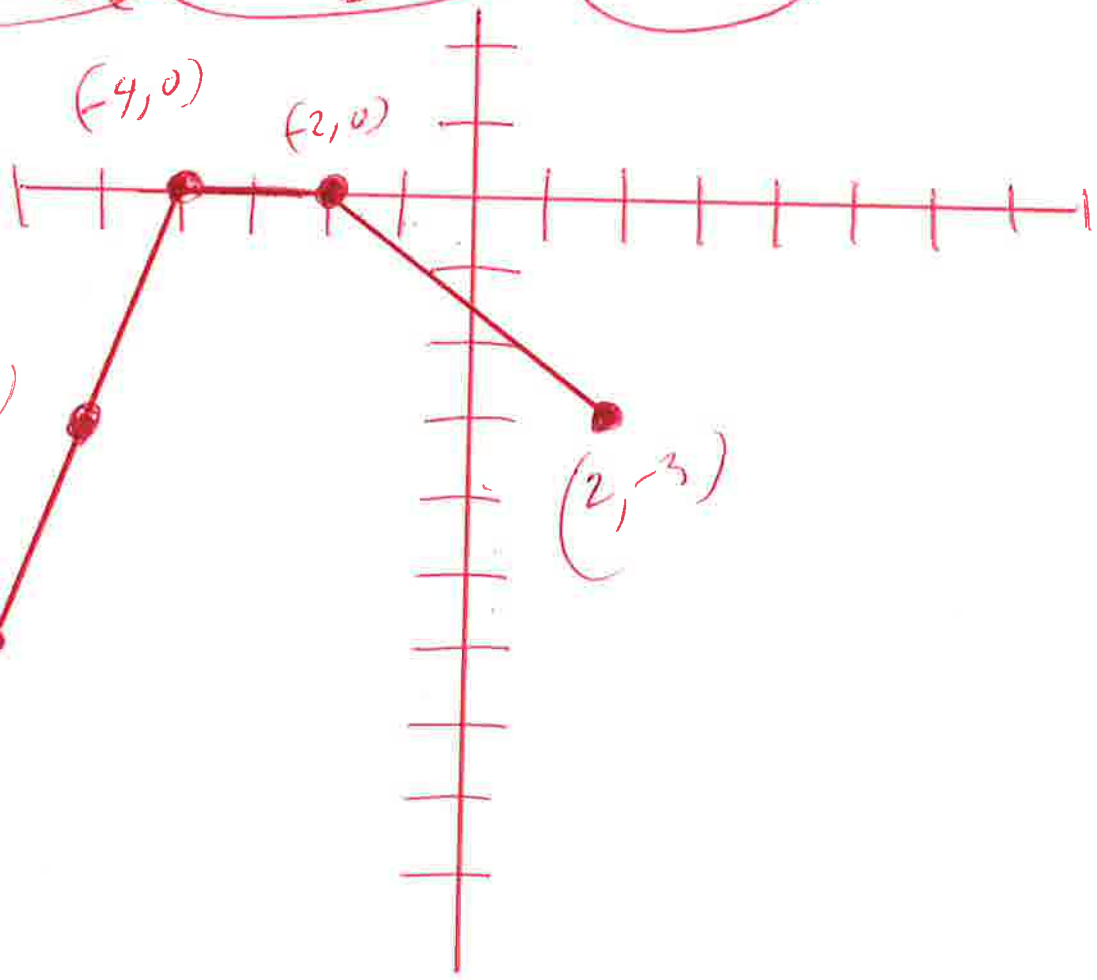


H(x) = f(x+2) − 3

Shift down −3

NEW

Shift left +2 opposite



9a

← −2

↓ −3

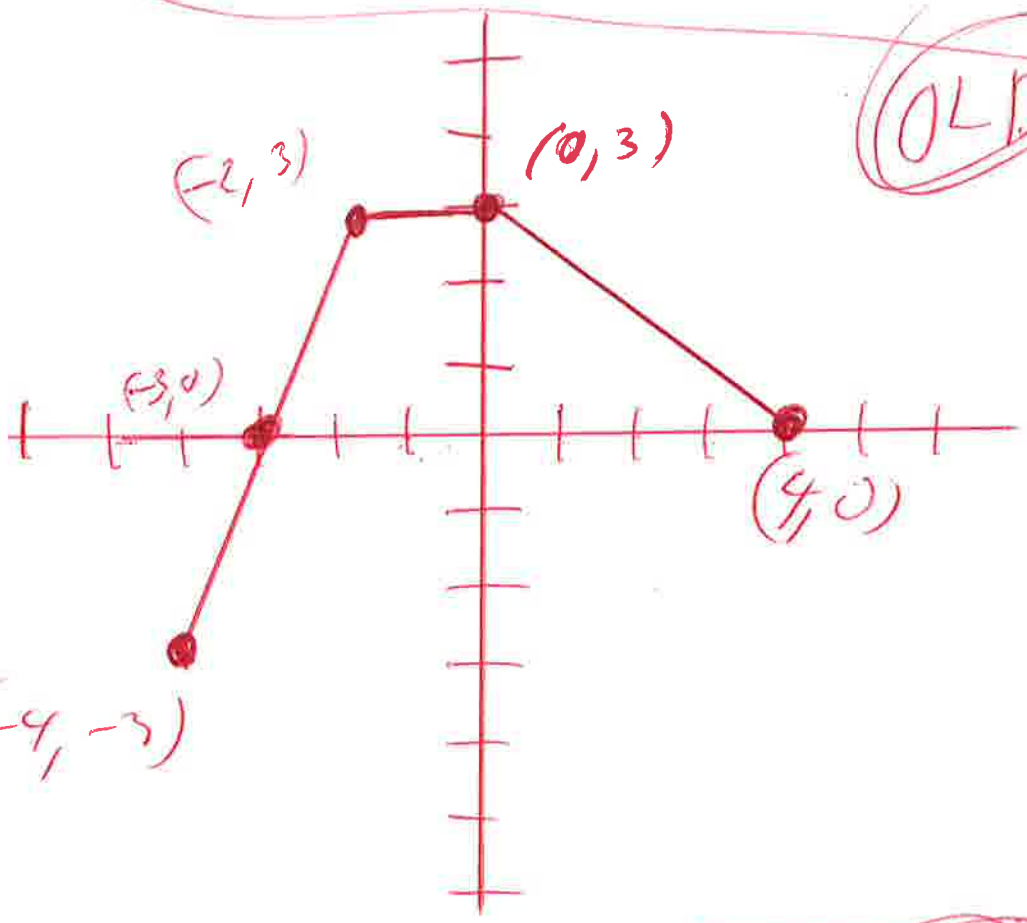
Shift (−6, −6)

9)

f(x)

2ND Part

OLD



$G(x) = f(x) + 2$

NEW

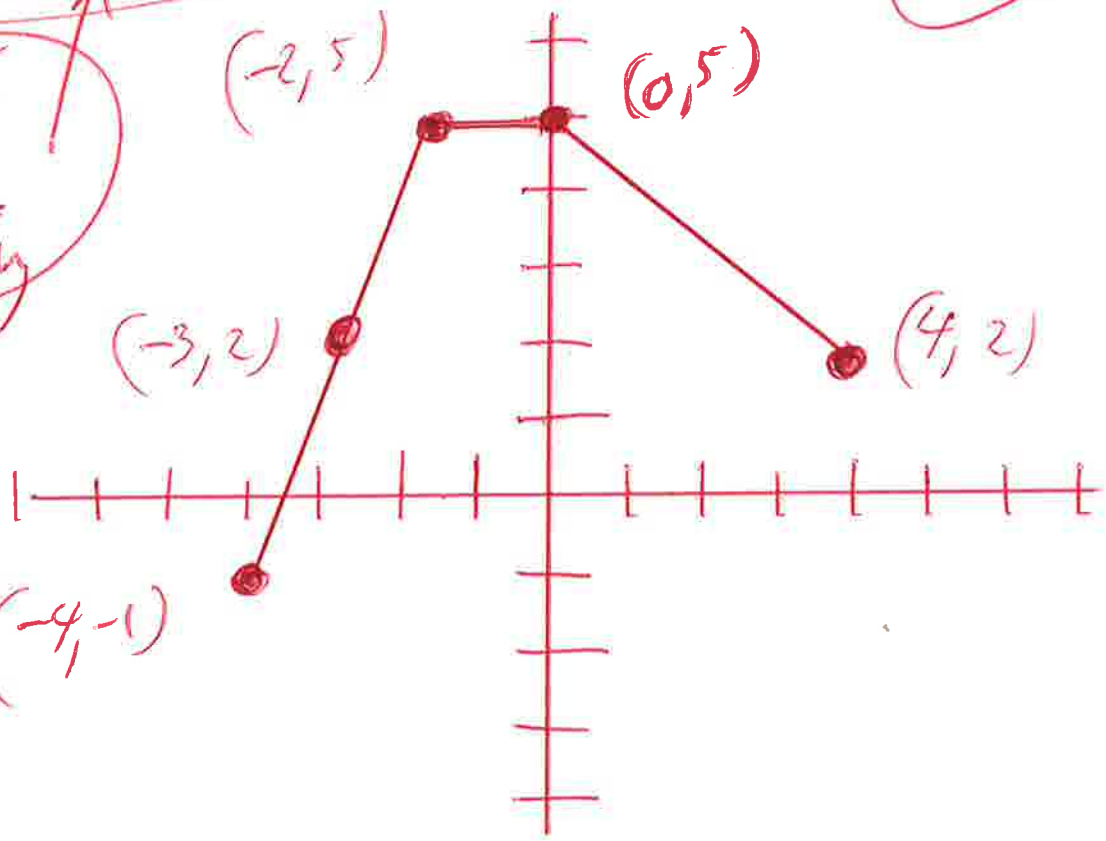
NEW

up +2

1

Shift up 2 only

9b



(10.) factor

$x^2 + 18x + 77 =$

Possible
77. 1
7. 11

$(x + 7)(x + 11) =$

Check

$(x+7)(x+11) =$

$x^2 + 11x + 7x + 77 =$

$x^2 + 18x + 77 =$

Good

(11) Solve

$(x-8)(3x+5)=0$

set $x-8=0$ OR $3x+5=0$

$x-8+8=0+8$ OR $3x+5-5=0-5$

$x=8$ OR $3x=-5$

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

$x=-5/3$

(12) Find the zeros of the quadratic function by factoring

$g(x) = 3x^2 - 10x - 8$

Possible

3 · 1

8 · 1
2 · 4

$3x^2 - 10x - 8 = 0$

$(3x + 2)(x - 4) = 0$

Let $3x + 2 = 0$ OR $x - 4 = 0$

$3x + 2 - 2 = 0 - 2$ OR $x - 4 + 4 = 0 + 4$

$3x = -2$

OR $x = 4$

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

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

(13) Solve the quadratic equation by using the quadratic formula

$$x^2 + 6x = -4$$

$$x^2 + 6x + 4 = -4 + 4$$

$$x^2 + 6x + 4 = 0$$

$$1x^2 + 6x + 4 = 0$$

$a = 1,\ b = 6,\ c = 4$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(6) \pm \sqrt{(6)^2 - 4(1)(4)}}{2(1)}$$

$$x = \frac{-6 \pm \sqrt{36 - 16}}{2}$$

$$x = \frac{-6 \pm \sqrt{20}}{2}$$

$$x = \frac{-6 \pm \sqrt{4 \cdot 5}}{2}$$ rewrite

$$x = \frac{-6 \pm \sqrt{4}\sqrt{5}}{2}$$

Prime
2, 3, 5, 7, 11, ...

2	20
2	10
5	5
	1

$20 = 2 \cdot 2 \cdot 5$

OR

$20 = 4 \cdot 5$

$$x = \frac{-6 \pm 2\sqrt{5}}{2}$$

$$x = -\frac{6}{2} \pm \frac{2\sqrt{5}}{2}$$

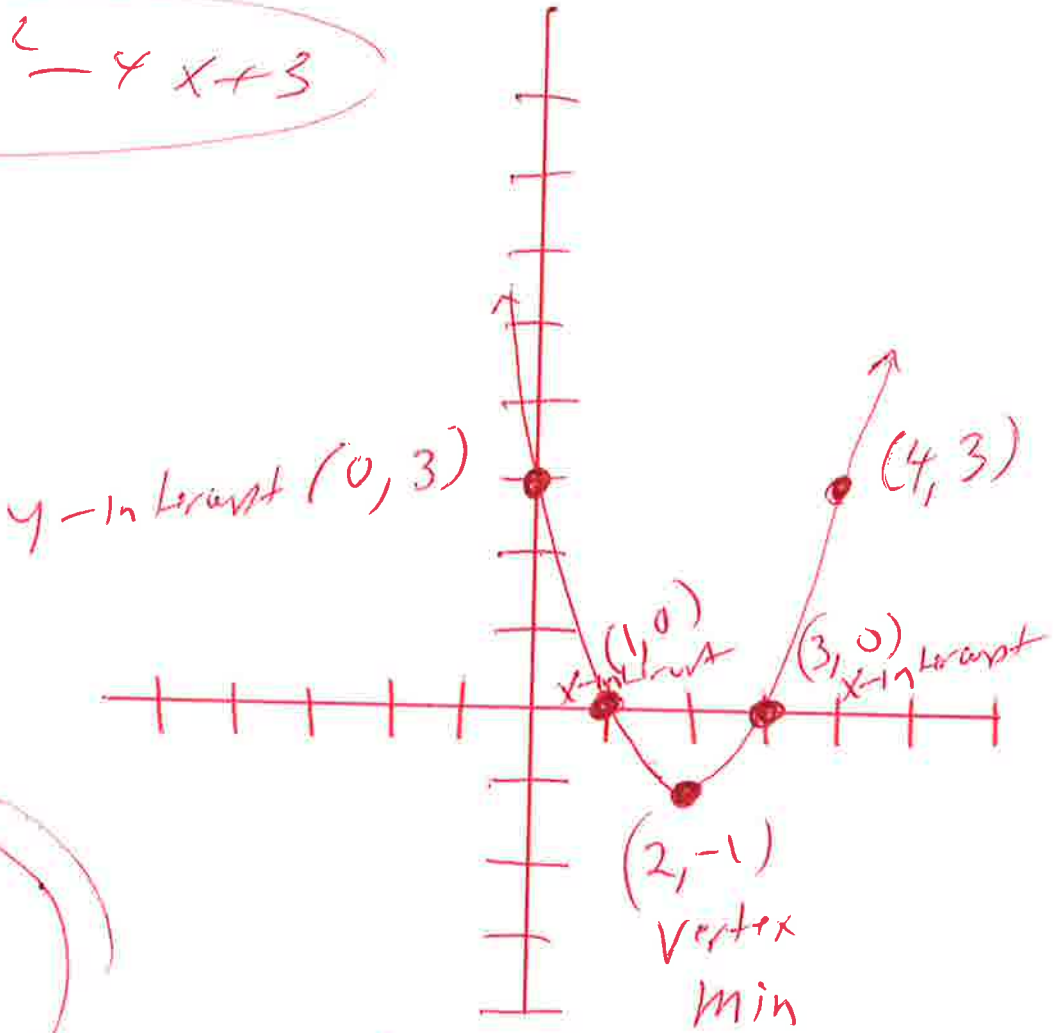
$$x = -3 \pm 1\sqrt{5}$$

$$x = -3 \pm \sqrt{5}$$

$x = -3 + \sqrt{5}$ OR $x = -3 - \sqrt{5}$

(14) Graph

$f(x) = x^2 - 4x + 3$



Windows

x-min = -12

x-max = 12

y-min = -10

y-max = 10

Use graphing Calculator

$Y_1 = x^2 - 4x + 3$

BIG

Min

Vertex = (2, -1)

y-intercept = (0, 3)

x-intercepts = (1, 0) and (3, 0)

(15.) determine without graphing whether the given quadratic function has a maximum value or a minimum value and then find the value where it occurs

since it is negative graph opens down and has a max

max

$f(x) = -2x^2 + 4x - 7$

$a = -2,\ b = 4,\ c = -7$

Vertex $= \left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$ formula

Vertex $= \left(\frac{-(4)}{2(-2)}, f\left(\frac{-(4)}{2(-2)}\right)\right)$

Vertex $= \left(\frac{-4}{-4}, f\left(\frac{-4}{-4}\right)\right)$

Vertex $= (1, f(1))$

Vertex $= (1, -2(1)^2 + 4(1) - 7)$

Vertex $= (1, -2(1)(1) + 4(1) - 7)$

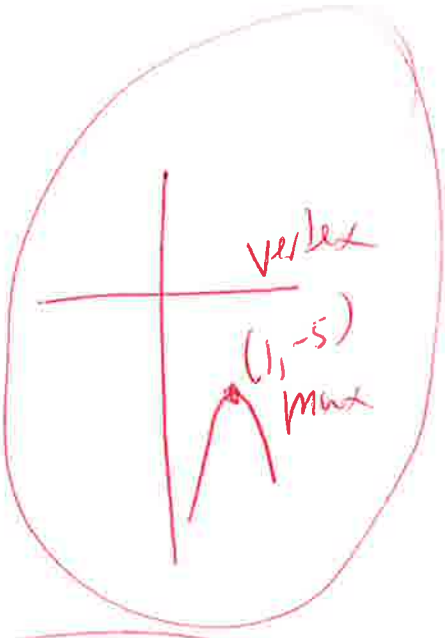
Vertex $= (1, -2(1) + 4(1) - 7)$

Vertex $= (1, -2 + 4 - 7)$

Vertex $= (1, 2 - 7)$

Vertex $= (1, -5)$

$(1, -5)$ Max



(16) $f(x) = 1x^3 - 3x^2 - 25x - 21$

Possible Last / First

$\frac{\pm 21}{\pm 1}$

± 1

$\pm 21, \mp 7, \mp 3, \pm 1$

$\frac{\pm 21}{1}, \frac{\pm 7}{1}, \frac{\pm 3}{1}, \frac{\pm 1}{1} =$

$\pm 21, \pm 7, \mp 3, \pm 1 =$

use synthetic division

try $x = -1$

-1	1	-3	-25	-21
		-1	4	21
	1	-4	-21	0 rem

set $x^2 - 4x - 21 = 0$ ←

Possible
21: 1
7: 3

3 | 21
7 | 7
1 | 1

$(x+3)(x-7) = 0$

$x+3=0$ or $x-7=0$

$x+3-3=0-3$ OR $x-7+7=0+7$

$x = -3$ or $x = 7$

Answer

$-1, -3, 7$

(17) $3x^4 - 28x^3 + 81x^2 - 84x + 20 = 0$

Use Synthetic division

Possible
Last / first
$\pm 20, \pm 10, \pm 5, \pm 4, \pm 2, \pm 1$
$\pm 3, \pm 1$

$\frac{\pm 20}{1}\ \frac{\pm 10}{1}\ \frac{\pm 5}{1}\ \frac{\pm 4}{1}\ \frac{\pm 2}{1}\ \frac{\pm 1}{1}\ \frac{\pm 20}{3}\ \frac{\pm 10}{3}\ \frac{\pm 5}{3}\ \frac{\pm 4}{3}\ \frac{\pm 2}{3}\ \frac{\pm 1}{3}$

Use Synthetic division try $x = 2$

2	3	−28	81	−84	20
		6	−44	74	−20
	3	−22	37	−10	0 rem

Try $x = 2$ again

Use Synthetic division

2	3	−22	37	−10
		6	−32	10
	3	−16	5	0 rem

$3x^2 - 16x + 5 = 0$

Possible 3·1, 5·1

$(3x - 1)(x - 5) = 0$

$3x - 1 = 0$ or $x - 5 = 0$

$3x - 1 + 1 = 0 + 1$ OR $x - 5 + 5 = 0 + 5$

$3x = 1$ or $x = 5$

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

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

Answer

$\left[2, 2, \frac{1}{3}, 5\right]$

OR

Repeat

$\left[2, \frac{1}{3}, 5\right]$

(18) Find the vertical and horizontal asymptotes

$$R(x) = \frac{8x^2}{1x^2 - 2x - 15}$$

Possible 1s 1 3 5

Let $x^2 - 2x - 15 = 0$

$(x+3)(x-5) = 0$

$x+3=0$ OR $x-5=0$

$x+3-3=0-3$ OR $x-5+5=0+5$

$x=-3$ OR $x=5$

Vertical asymptotes

highest power top / highest power bottom

Let $\frac{8x^2}{1x^2} =$

$\frac{8}{1} =$ simplify

$8 =$

$y = 8$

horizontal asymptote

(19) $f(x) = 4x + 9$ and $g(x) = 2x - 5$

(a) $(f \circ g)(x) =$

$f(g(x)) =$

$f(2x-5) =$

$4(2x-5) + 9 =$

$8x - 20 + 9 =$

$8x - 11 =$ ✓

$f(x) = 4x+9$ and $g(x) = 2x-5$

(b) $(g \circ f)(x) =$

$g(f(x)) =$

$g(4x+9) =$

$2(4x+9) - 5 =$

$8x + 18 - 5 =$

$8x + 13 =$ ✓

(20) $f(x) = 3x+3$ and $g(x) = x^2$

(a) $(g \circ f)(x) =$

$g(f(x)) =$

$g(3x+3) =$

$(3x+3)^2 =$

$(3x+3)(3x+3) =$

$9x^2 + 9x + 9x + 9 =$ ✓✓

$9x^2 + 18x + 9 =$

(b) $(f \circ g)(-3)$ find $f(x) = 3x+3$ and $g(x) = x^2$

$(f \circ g)(x) =$ ← 1st do this

$f(g(x)) =$ ↓

$f(x^2) =$ ↓

$3(x^2)+3 =$ ↓

$3x^2+3 =$ ↓ 2ND do this

$(f \circ g)(x) = 3x^2+3$

$(f \circ g)(-3) = 3(-3)^2+3$

$(f \circ g)(-3) = 3(-3)(-3)+3$

$(f \circ g)(-3) = 3(9)+3$

$(f \circ g)(-3) = 27+3$

$(f \circ g)(-3) = 30$ ✓

(21) the function $f(x) = 6x - 3$ is one-to-one

find the following and graph f and f^{-1}

$f(x) = 6x - 3$

let $y = 6x - 3$

$x = 6y - 3$

$x + 3 = 6y - 3 + 3$

$x + 3 = 6y$

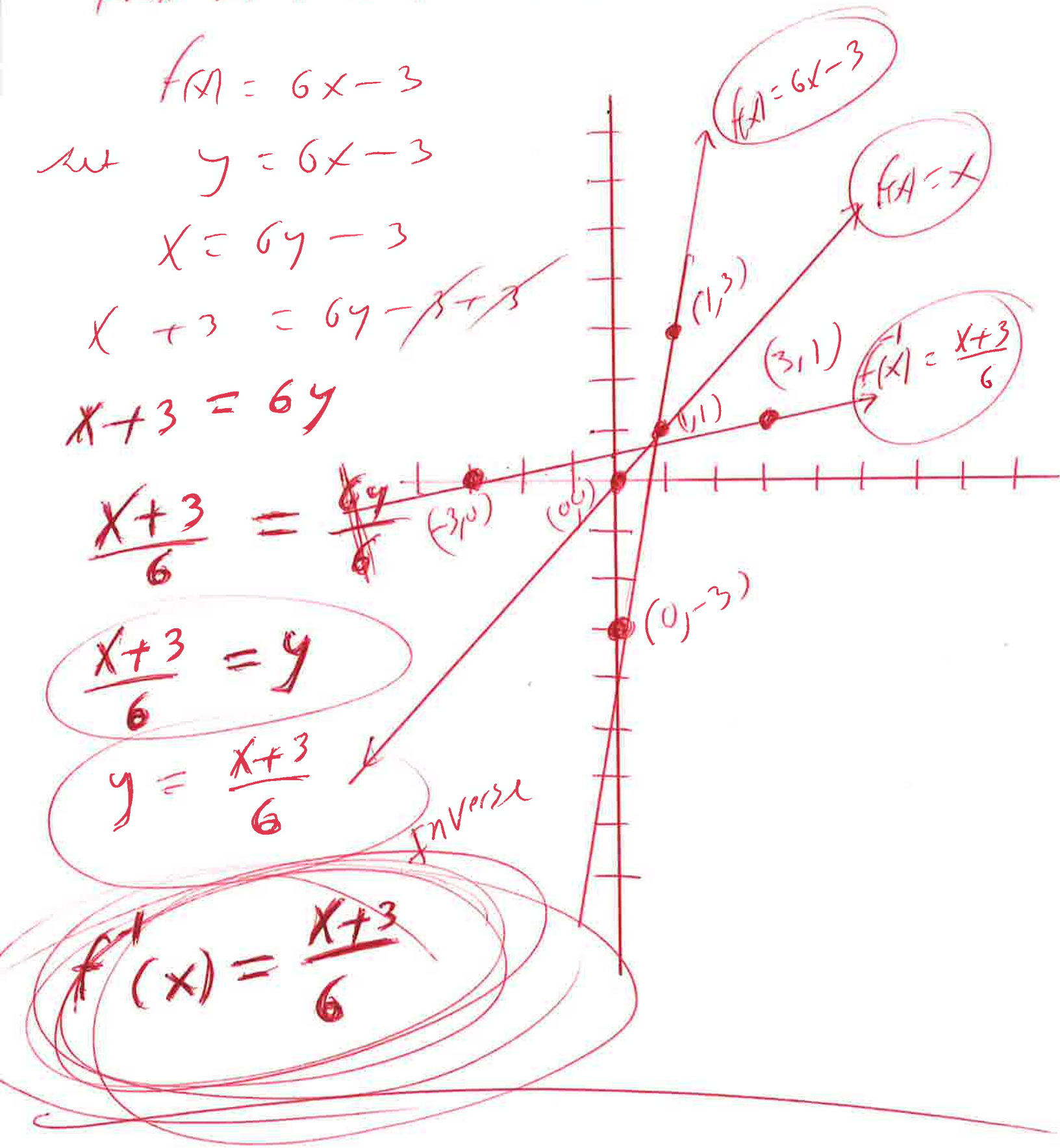
$\frac{x+3}{6} = \frac{6y}{6}$

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

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

inverse

$f^{-1}(x) = \frac{x+3}{6}$



22 Solve

$64^{-x+52} = 128^{x}$

$(2^6)^{-x+52} = (2^7)^{x}$ rewrite

$2^{-6x+312} = 2^{7x}$

$-6x + 312 = 7x$

$-6x + 312 - 312 = 7x - 312$

$-6x = 7x - 312$

$-6x - 7x = 7x - 312 - 7x$

$-13x = -312$

$\frac{-13x}{-13} = \frac{-312}{-13}$

$x = 24$

23

Solve

$\log_2 (2x+1) = 3$

rewrite

$2^3 = 2x+1$

$2 \cdot 2 \cdot 2 = 2x+1$

$8 = 2x+1$

$8 - 1 = 2x+1-1$

$7 = 2x$

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

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

(24) Solve

$\log_4(5x) = 2$

rewrite

$4^2 = 5x$

$4 \cdot 4 = 5x$

$16 = 5x$

$\frac{16}{5} = \frac{5x}{5}$

$\frac{16}{5} = x$

25. Find the accumulated value of a $400 investment after 4 years if interest is compounded quarterly at an annual rate of 5.2%

$$A = P\left(1 + \frac{r}{N}\right)^{Nt}$$

$$A = \$400\left(1 + \frac{.052}{4}\right)^{4(4)}$$

$$A = \$400\left(1 + \frac{.052}{4}\right)^{16}$$

$$A = \$400\left(1 + \frac{.052}{4}\right)\wedge 16$$

$$A = \$491.82558495$$

OR

$$A = \$491.83$$

Round

$P = \$400$

$r = 5.2\% = .052$

$N = 4 =$ Quarterly

$t = 4 =$ years

Use graphing calculator

(26) How many years will it take for an investment of $10,000 to grow to $35,000? Assume an interest rate 9% compounded continuously.

$A = 35,000$
$P = 10,000$
$r = 9\% = .09$
$t = ?? = \text{years}$

Formula $A = Pe^{rt}$

$35000 = 10000e^{.09t}$

$\frac{35000}{10000} = \frac{10000e^{.09t}}{10000}$

$3.5 = e^{.09t}$

$\ln(3.5) = \ln(e^{.09t})$

$\ln(3.5) = .09t \ln(e)$

$\ln(3.5) = .09t(1)$

$\ln(3.5) = .09t$

$\frac{\ln(3.5)}{.09} = \frac{.09t}{.09}$

Formula
$\ln(A^N) = N \ln A$

$\ln(e) = 1$

$13.91958854 = t$ years

Or

13.92 years $= t$

Round

(27) $4x-3y=-1$

$5x+y=13$

$\begin{pmatrix} 4x-3y=-1 \\ 5x+1y=13 \end{pmatrix}\begin{pmatrix} 1 \\ 3 \end{pmatrix}$ Mult

$4x-3y=-1$

$15x+3y=39$

$19x+0=38$

$19x=38$

$\frac{19x}{19}=\frac{38}{19}$

$x=2$

Subs

$4x-3y=-1$

$4(2)-3y=-1$

$8-3y=-1$

$8-3y-8=-1-8$

$-3y=-9$

$\frac{-3y}{-3}=\frac{-9}{-3}$

$y=3$

$(x, y)=(2, 3)$

(28) $x - 3y + 4z = 24$
$2x + y + z = 6$
$-2x + 3y - 3z = -22$

Use graphing calculator

2nd, matrix, edit, [A], 3 x 4, enter

$$[A] = \begin{bmatrix} 1 & -3 & 4 & 24 \\ 2 & 1 & 1 & 6 \\ -2 & 3 & -3 & -22 \end{bmatrix}$$

2nd, matrix, math, ↓, rref( ), enter

rref([A]) =

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & -2 \\ 0 & 0 & 1 & 4 \end{array}\right] \begin{matrix} x \\ y \\ z \end{matrix}$$

$(x, y, z) = (2, -2, 4)$

29) $\sqrt{5x-1} = x-3$

Solve and Check

$(\sqrt{5x-1})^2 = (x-3)^2$

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

$5x-1 = x^2-3x-3x+9$

$5x-1 = x^2-6x+9$

$0 = x^2-6x+9-5x+1$

$0 = x^2-11x+10$

Possible
10, 1
2, 5

$0 = (x-1)(x-10)$

$x-1=0$ OR $x-10=0$

$x-1+1=0+1$ OR $x-10+10=0+10$

~~$x=1$~~ OR $x=10$

Check

$\sqrt{5x-1} = x-3$

$\sqrt{5(1)-1} = (1)-3$

$\sqrt{5-1} = 1-3$

$\sqrt{4} = -2$

$2 \neq -2$

BAD

$\sqrt{5(10)-1} = (10)-3$

$\sqrt{50-1} = 10-3$

$\sqrt{49} = 7$

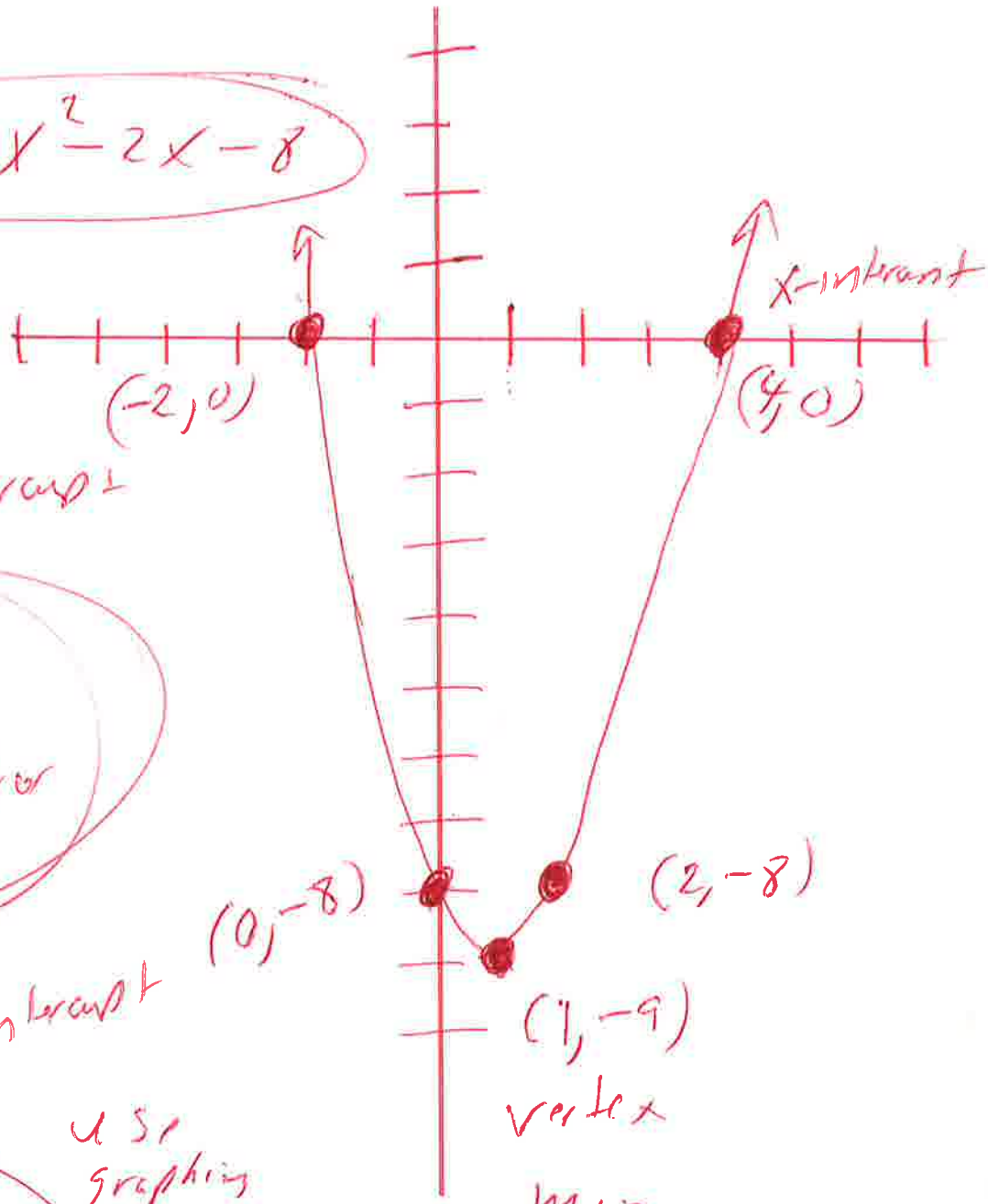
$7 = 7$

Good answer

$x=10$ only

30. Graph

$f(x) = x^2 - 2x - 8$



Use graphing Calculator

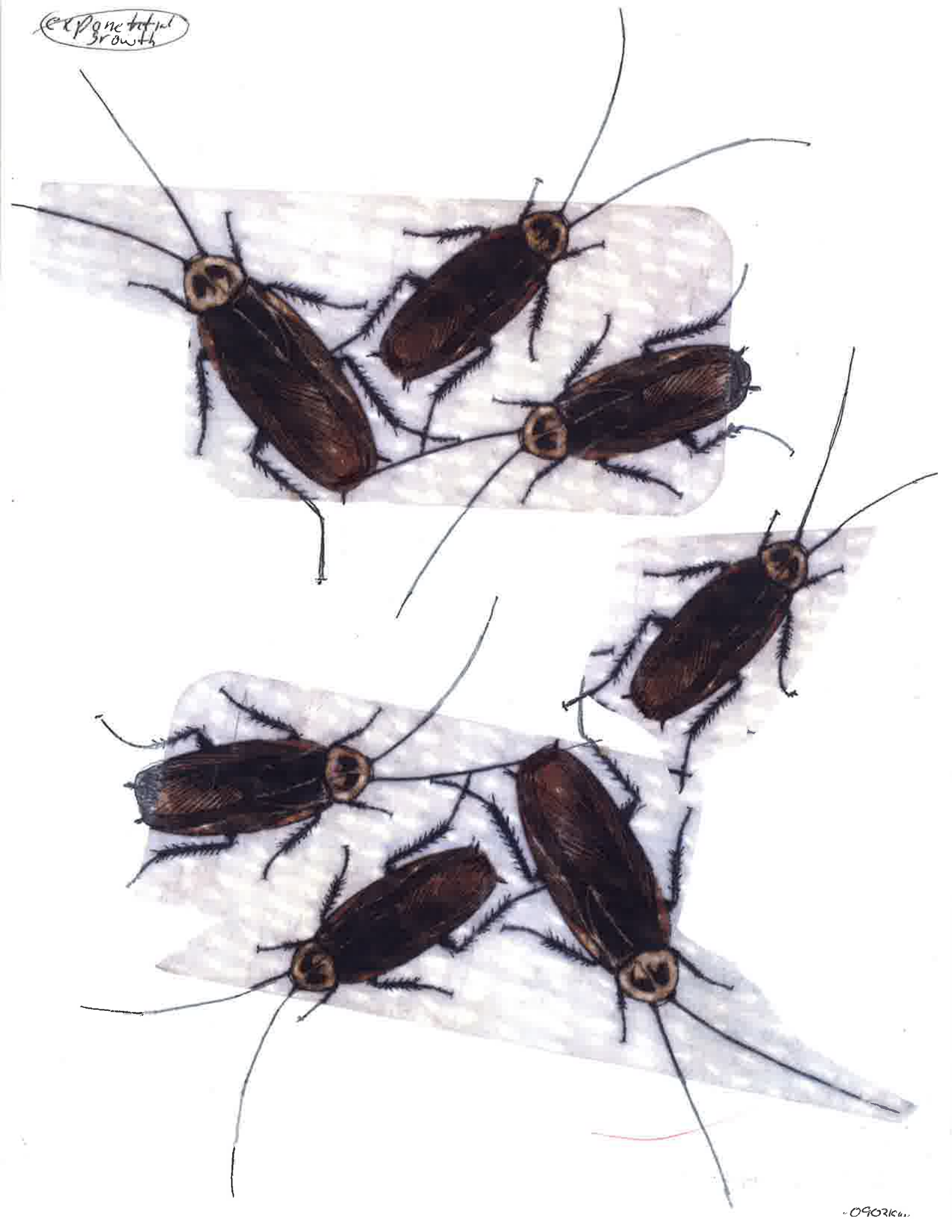
Use graphing Calculator

Window
x-min = -12
x-max = 12
y-min = -10
y-max = 10

$y_1 = x^2$ BIG $- 2x$ BIG $- 8$

Min

Vertex = (1, -9)
y-intercept = (0, -8)
x-intercepts = (-2, 0) and (4, 0)
Other point = (2, -8)


exponential growth