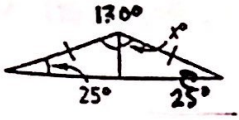


Review #1

3



$X = 65$

②  $3X = 2(48)$   
 $3X = 96$   
 $X = 32$

③ altitude  
 ④ perpendicular bisector

⑤ BW or AT  
 ⑥  $\overline{PZ}$   
 ⑦ 2

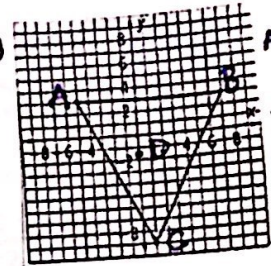
⑧ T  
 ⑨  $x+3 = 3x-3$   
 $6 = 2x$   
 $x = 3$

⑥ HL=30  
 LF=60  
 HF=90

⑦ KE=15  
 KL=5  
 LE=10

⑧ DL=24  
 LJ=12  
 DJ=36

⑨  $3a+5 = -2a+5$   
 $5a = 10$   
 $a = 2$   
 $XU = 11$



$AD = \sqrt{(-4)^2 + (4)^2}$   
 $= 7.5$   
 $BD = \sqrt{(6)^2 + (4)^2}$   
 $= 7.5$   
 $CD = \sqrt{(0)^2 + (4)^2}$   
 $= 4$

⑪ a)  $(18-2)(180)$   
 $2880^\circ$

⑫  $x+70 = 180$   
 $x = 110$

b)  $160^\circ = \frac{2880}{18}$

$y+78 = 180$   
 $y = 102$

c)  $20^\circ = \frac{360}{18}$

$90 + 78 + 110 + z = 360$   
 $z = 82$

⑬  $8x + 7x = 180$   
 $15x = 180$   
 $x = 12$

$7(12) = y$   
 $84 = y$

⑭  $3y + 8 = 2x - 4$   $-2x + 3y = -12$   
 $5y = x + 8$   $-2(-x + 5y = 8)$

$-2x + 3y = -12$   $5(4) = x + 8$

$2x - 10y = -10$   $12 = x$

$-7y = -28$   
 $y = 4$  \* cannot assume all sides  $\cong$

⑮ diagonals bisect, can prove  $\Delta s \cong$  by SAS, opp sides  $\cong$  so yes, parallelogram

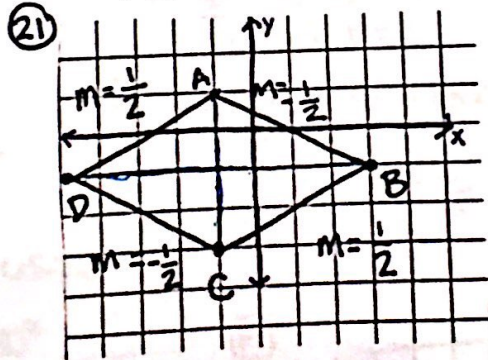
⑯ not enough info

- ⑰ 1.  $40^\circ$  rectangle  
 2.  $100^\circ$   
 3.  $50^\circ$   
 4.  $80^\circ$

⑱ square  
 $\angle 1 + \angle 2 = 45^\circ$

⑲  $5x - 15 = 4x + 1$   
 $x = 16$

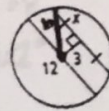
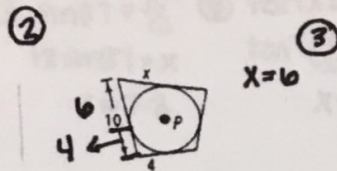
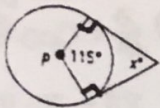
⑳  $\frac{x+1+10}{2} = 3x-2$   
 $x+11 = 6x-4$   
 $15 = 5x$   
 $x = 3$



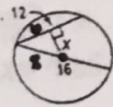
4  $\cong$  triangles  
 c.p.c.t.c  $\Rightarrow$   
 sides of  
 parallelogram  $\cong$   
 rhombus

Review #3

①  $115 + 90 + 90 + x = 360$   
 $x = 65$

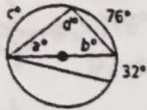


④  $3^2 + x^2 = 6^2$   
 $x^2 = 27$   
 $x = 3\sqrt{3}$

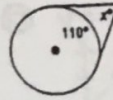
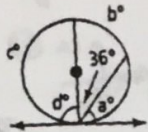


$x^2 + 6^2 = 8^2$   
 $x^2 = 28$   
 $x = 2\sqrt{7}$

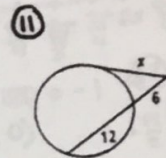
⑤  $a = \frac{1}{2}(76) = 38^\circ$   
 $c + 76 = 180$   
 $c = 104^\circ$   
 $b = 52^\circ = \frac{1}{2}(104)$   
 $d = \frac{1}{2}(180) = 90^\circ$



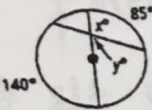
⑥  $a = \frac{1}{2}(108) = 54^\circ$   
 $b = 2(36) = 72^\circ$   
 $c = 180^\circ$   
 $d = \frac{1}{2}(180) = 90^\circ$



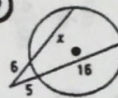
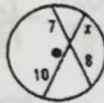
$\frac{250 - 110}{2} = x$   
 $x = 70^\circ$



⑧  $\frac{85 + 140}{2} = x$   
 $x = 112.5$   
 $112.5 + y = 180$   
 $y = 67.5$



⑩  $10x = 8(7)$   
 $x = 5.6$



$6(x+6) = 5(21)$   
 $6x + 36 = 105$   
 $6x = 69$   
 $x = 11.5$

$x^2 = 6(18)$   
 $x^2 = 108$   
 $x = 6\sqrt{3}$

⑫  $(x+1)^2 + (y+3)^2 = 1$   
 $C = (-1, -3) \quad r = 1$

⑮  $C: (-\frac{3+4}{2}, \frac{7-8}{2})$   
 $(1, -\frac{1}{2})$

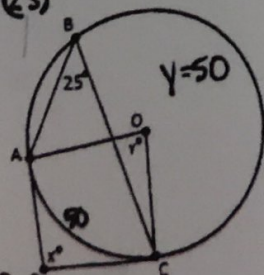
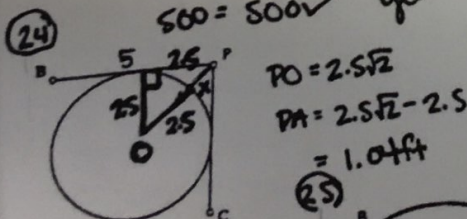
$d \Rightarrow r: \sqrt{(1+2)^2 + (-\frac{1}{2}-7)^2}$   
 $r = \sqrt{65.25}$

$(x-1)^2 + (y+\frac{1}{2})^2 = 65.25$

⑬  $20^2 + 10^2 \stackrel{?}{=} (10+10\sqrt{5})^2$   
 $500 \stackrel{?}{=} 1047.2... \quad X \text{ no}$   
 if 10 $\sqrt{5}$  is the whole hypotenuse, then:

$20^2 + 10^2 \stackrel{?}{=} (10\sqrt{5})^2$

$500 = 500 \checkmark \text{ yes}$



㉑  $50 \times 20 = 1000$

㉒  $\frac{40}{24\pi} = \frac{x}{360} \quad x = \frac{400}{\pi}$

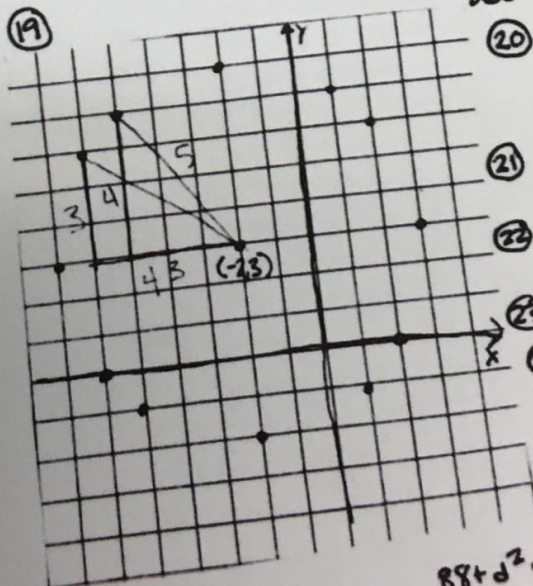
Area =  $\frac{600/\pi}{360} \cdot \pi(24)^2 = 9600 \text{ cm}^2$

⑬  $x^2 + y^2 - 2x + 4y - 4 = 0$   
 $x^2 - 2x + 1 + y^2 + 4y + 4 = 4 + 1 + 4$   
 $(x-1)^2 + (y+2)^2 = 9$   
 $C = (1, -2) \quad r = 3$

⑭ a)  $\frac{144}{360} \cdot \pi(4)^2 = \frac{32}{5}\pi \text{ ft}^2$   
 b)  $\frac{144}{360} \cdot 2\pi(4) = \frac{16\pi}{5} \text{ ft}$

⑭  $4x^2 - 4x + 4y^2 + 2y = 1$   
 $(4x^2 - 4x + 1) + (4y^2 + 2y + \frac{1}{4}) = 1 + \frac{1}{4} + \frac{1}{4}$   
 $4(x - \frac{1}{2})^2 + 4(y + \frac{1}{4})^2 = 1 + 1 + \frac{1}{4}$   
 $(x - \frac{1}{2})^2 + (y + \frac{1}{4})^2 = \frac{9}{16} \quad C: (\frac{1}{2}, -\frac{1}{4}) \quad r = \frac{3}{4}$

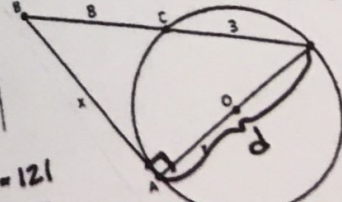
⑰ a)  $\frac{90}{360} \cdot \pi(9)^2 = \frac{81\pi}{4}$   
 b)  $\frac{90}{360} \cdot 2\pi(9) = \frac{9\pi}{2}$



⑳  $18 = \frac{x}{360} \cdot 12\pi$   
 $\frac{540}{\pi} \Rightarrow 3 \text{ rad}$

㉑  $(x+1)^2 + (y+3)^2 = 25$   
 ㉒ Show algebraically or definition of radius

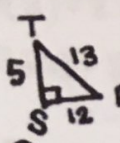
㉓  $x^2 + y^2 = 9$   
 $x^2 = 88$   
 $x = 2\sqrt{22}$



$8^2 + d^2 = 12^2$   
 $d^2 = 32$   
 $d = \sqrt{32}$   
 $y = \frac{\sqrt{32}}{2}$

㉔  $\frac{2\pi}{3} = \frac{x}{18}$   
 $12\pi = x$

REVIEW #4



①  $\sin R = \frac{5}{13}$

②  $\sin T = \frac{12}{13}$

③  $\cos T = \frac{5}{13}$  ④  $\cos R = \frac{12}{13}$

⑤  $\sin 37 = \frac{x}{12}$   
 $12 \sin 37 = x$   
 $x \approx 7.2$

⑥  $\tan x = \frac{47}{25}$   
 $\tan^{-1}(\frac{47}{25}) = x$   
 $x \approx 62^\circ$

⑦  $\cos 48 = \frac{5}{x}$   
 $x = \frac{5}{\cos 48}$   
 $x \approx 7.5$

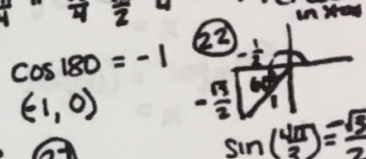
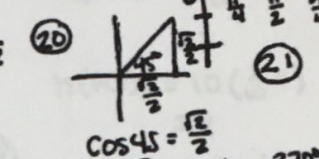
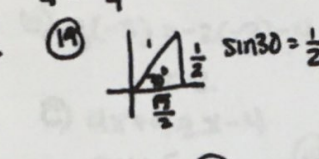
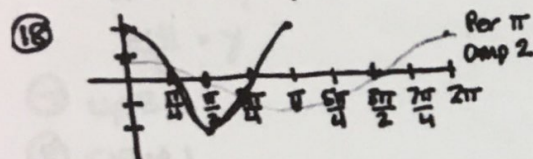
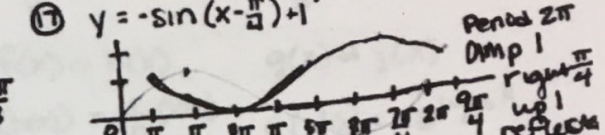
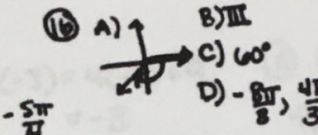
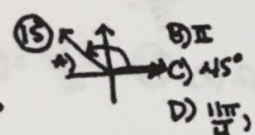
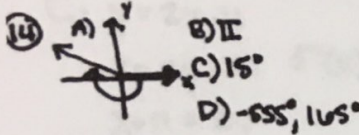
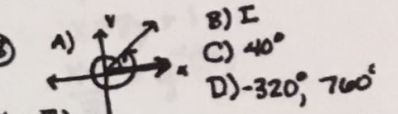
⑧  $\cos x = \frac{6.5}{10}$   
 $\cos^{-1}(\frac{6.5}{10}) = x$   
 $x \approx 49.5$

⑨  $270 \cdot \frac{\pi}{180} = \frac{3\pi}{2}$

⑩  $-100 \cdot \frac{\pi}{180} = -\frac{5\pi}{9}$

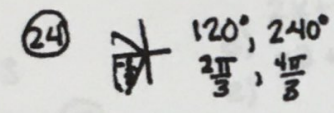
⑪  $5\pi \cdot \frac{180}{\pi} = 900$

⑫  $-\frac{5\pi}{6} \cdot \frac{180}{\pi} = -150$



⑬

S	A	60°, 120°
T	C	π/3, 2π/3

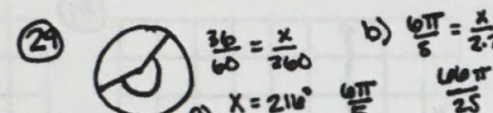


⑭  $\frac{40}{12} = \frac{10}{3}$  3.8

⑮

Sin	0	π/6	π/4	π/3	π/2
	0	1/2	√2/2	√3/2	1

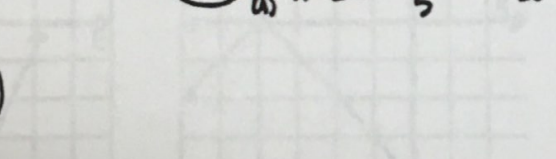
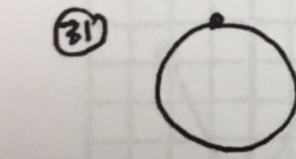
⑯  $4 = \frac{x}{18}$   $x = 72$



⑰  $\frac{6\pi}{5} = \frac{x}{2.2}$   
 $\frac{6\pi \cdot 2.2}{5} = x$

⑱

cos	1	√3/2	√2/2	1/2	0
-----	---	------	------	-----	---



- ⑳  $f(x) = -11 \sin(\frac{2\pi}{3}x) + 38$
- a) baseline of stock
  - b) amplitude, reflected
  - c)  $\frac{2\pi}{\frac{2\pi}{3}} = 4$  months
  - d) buy 1, sell 3

review #5 (part 1)

$f(x) = 2x - 11$

A.  $f(-2) = 2(-2) - 11 = -15$

B.  $f(3-x) = 2(3-x) - 11 = 6 - 2x - 11 = -2x - 5$

C.  $y = 2x - 11$

$x = 2y - 11 \quad f^{-1}(x) = \frac{x+11}{2}$

$x+11 = 2y$

$\frac{x+11}{2} = y$

②  $y = 27x^3 - 1$

$x = 27y^3 - 1$

$x+1 = 27y^3$

$\sqrt[3]{\frac{x+1}{27}} = \sqrt[3]{y^3}$

$\frac{\sqrt[3]{x+1}}{3} = f^{-1}(x)$

③  $y = \frac{1}{3}x + 3$

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

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

$3x-9 = f^{-1}(x)$

④  $y = 4(x-1)^2$

$x = 4(y-1)^2$

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

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

$\frac{\sqrt{x}}{2} + 1 = f^{-1}(x)$

⑤  $y = x^2$

$x = y^2$

$\sqrt{x} = f^{-1}(x)$

⑥  $y = 3x+1$

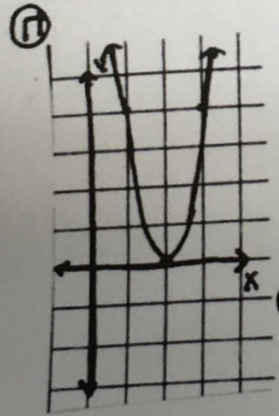
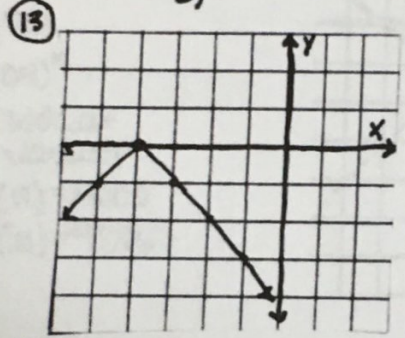
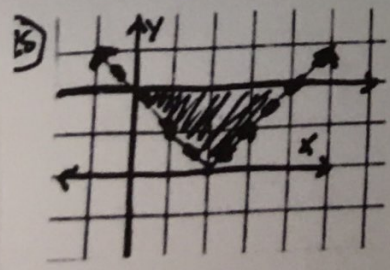
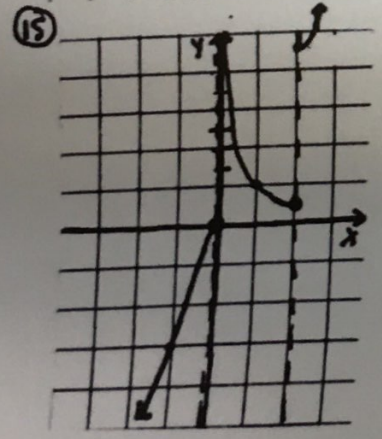
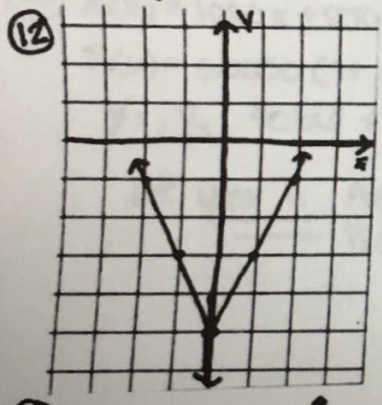
$x = 3y+1$

$\frac{x-1}{3} = g^{-1}(x)$

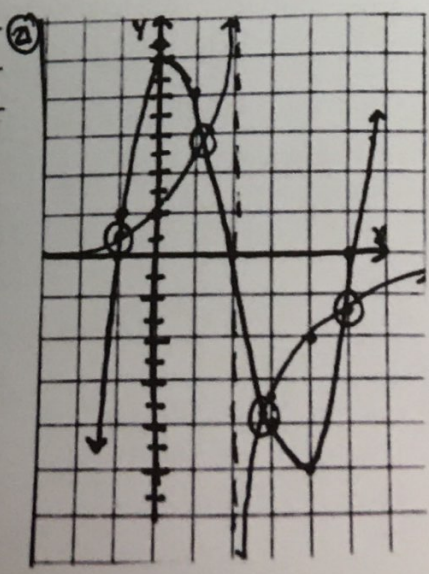
⑦ up 2

⑧ right 1

⑨ reflect in x-axis, vert stretch 3



⑳ rewrite w/  $\leq$  and positive and another w/  $\geq$  and negative  
 $x+5 \leq 6.5 \quad x+5 \geq -4.5$

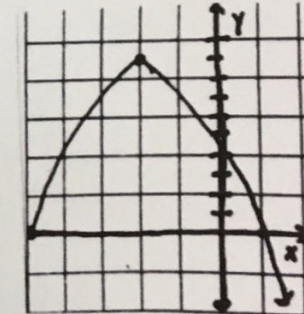
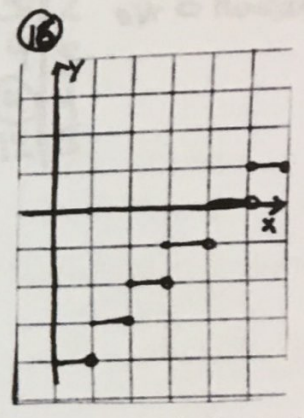
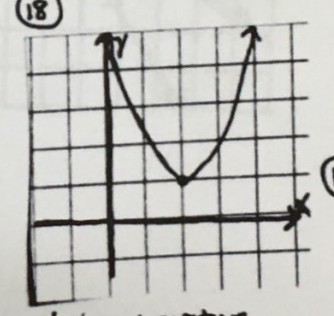
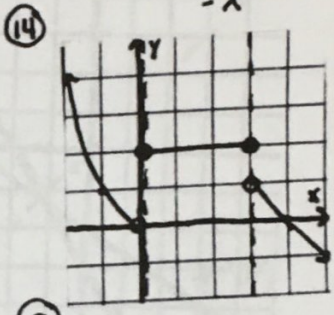
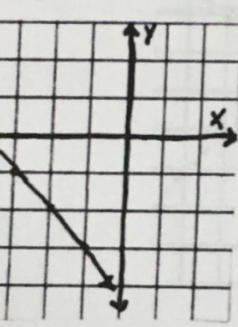


⑩ a)  $f(-3) = 4(-3) + 9 = -3$

b)  $g(-3) = -2(-3) - 4 = 2$

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

d)  $-3+2 = -1$



㉒ A. (1, 21, 15)  
 B. (0, 0)

㉓  $x+4 = -2x+3$   
 $3x = -1 \quad (-\frac{1}{3}, \frac{11}{3})$   
 $x = -\frac{1}{3}$   
 $y = \frac{11}{3}$

㉔  $2x-3y = -6$   
 $-2(x+2y = 11)$   
 $(3, 4)$   
 $2x-3y = -6$   
 $-2x-4y = -22$   
 $-7y = -28$   
 $y = 4$   
 $x = 3$

new #5 (continued)

26)  $x^2 + 2x - 8 = x + 4$   
 $x^2 + x - 12 = 0$

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

$x = -4 \quad y = 0 \quad (-4, 0)$

$x = 3 \quad y = 7 \quad (3, 7)$

29)  $x = \text{cheddar}$   
 $y = \text{chicken}$

$2(2x + 3y = 26.35) \quad 4x + 6y = 52.7$   
 $-3(1.5x + 2y = 18.35) \quad -4.5x - 6y = -55.05$   


---

 $-5x = -2.35$   
 $x = 4.70$   
 $y = 5.65$

33)  $A(x) = 1000x + 80000$

$B(x) = 60000(1 + .04)^x$

$y_1, y_2$  table  $\rightarrow$  look at values

At year 11  $A(11) = 9000$   
 $B(11) = 92367$

27) a)  $19.95(3) + 60$   
 $119.85$

b)  $> 6$

c) plan B would be cheaper but had to use plan A for 2.5 GB

d)  $9.95x + 75 = 125$   
 $x \approx 5.63$

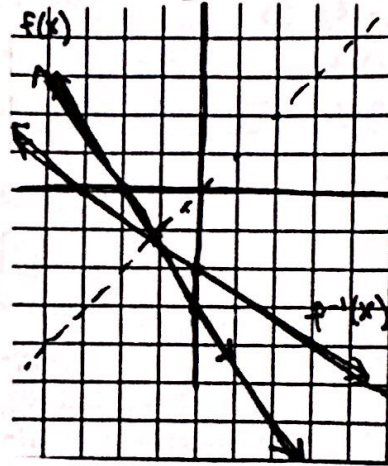
28)  $f(t) = \begin{cases} 99(1-.09)^t, & 0 \leq t \leq 3.3 \\ 68, & t > 3.3 \end{cases}$

\* difference \*

$f(t) = 25(1-.09)^t$

31) no, can't have negative values in a square root function

30)  $f(x) = -\frac{3}{2}x - 3$   
 $f^{-1}(x) = -\frac{2}{3}x - 2$



32)

x	f^{-1}(x)
2	1
4	2
9	3
4	4
12	5

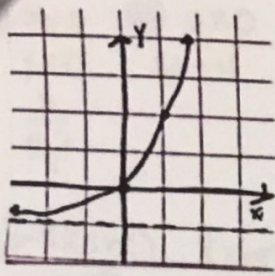
inverse is not a function

Review #6

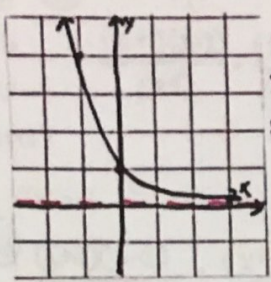
- ① ~~3n^3 + 3n^2 - n - 3~~ degree → cubic  
 $-2n^3 + 3n^2 - n - 3$  terms → 4
- ②  $-x^{12}$  → even, negative leading coefficient  
 $(+\infty, -\infty)$   $(\uparrow, \downarrow)$
- ③  $x^3 - 2x^2 - 35x$   
 $x(x^2 - 2x - 35)$   
 $x(x-7)(x+5)$
- ④  $(x+4)(x-5)$   
 $\begin{array}{r} -4 \downarrow 1 \quad k = -k = -1 \\ \quad \quad -4 \quad 20 \\ \hline 1 \quad -5 \quad 0 \end{array}$
- ⑤  $x^3 - 8$   
 $(x-2)(x^2 + 2x + 4)$
- ⑥  $p(x) = (x-5)(3x+5)(x^2-7x+10)$   
 $x-5=0$   $3x+5=0$   $x^2-7x+10=0$   
 $x=5$   $x=-\frac{5}{3}$   $x=7 \pm \frac{1}{2}$   
 $x=7 \pm \frac{1}{2}$
- ⑦  $(x-1)(3x-4)(x-4)(x-4)$   
 $5(x-1)(3x-4)(x-4)(x-4)$
- ⑧ a)  $x-3=0$   $\{3, 4\}$  b)  $\{0, 0, -1, -1, -1\}$   
 $x-4=0$   $\{3, 4 \text{ mult. } 2\}$   $\{0 \text{ mult. } 2, -1 \text{ mult. } 3\}$   
 $x-4=0$
- ⑨ a)  $w^4 - 13w^2 + 36 = 0$   
 $(w^2 - 4)(w^2 - 9)$   
 $(w+2)(w-2)(w+3)(w-3)$   
 $w = \{ \pm 2, \pm 3 \}$
- b)  $(x+3)(x^2 - 3x + 9)$   
 $x = -3$   $x = \frac{3 \pm \sqrt{9-4(9)}}{2}$   
 $x = \frac{3 \pm \sqrt{-27}}{2} = \frac{3 \pm 3i\sqrt{3}}{2}$   
 $x = \{ -3, \frac{3 \pm 3i\sqrt{3}}{2} \}$
- c)  $t^3 - 3t^2 - 10t = 0$   
 $t(t^2 - 3t - 10) = 0$   
 $t(t-5)(t+2) = 0$   
 $t = \{ 5, -2, 0 \}$
- ⑩  $p(-2) = (-2)^5 - (-2)^4 + 8(-2)^2 - 9(-2) + 30$   
 $= 32$
- ⑪  $\begin{array}{r} 2 \downarrow 1 \quad -3 \quad a \quad -6 \quad 14 \\ \quad \quad 2 \quad -2 \quad -1 \quad -14 \\ \hline 1 \quad -1 \quad -\frac{1}{2} \quad -7 \quad 0 \end{array}$   
 $a = \frac{3}{2}$
- ⑫ a) vert stretch  
 b) left 5 units  
 c) reflect in x-axis  
 up 4 units
- ⑬  $\begin{array}{r} -1 \downarrow 1 \quad 4 \quad 87 \\ \quad \quad 1 \quad -5 \\ \hline -1 \quad 5 \quad 82 \end{array}$   
 $-x + 5 + \frac{82}{x+1}$
- ⑭ a)  $\begin{array}{r} -1 \downarrow 1 \quad 0 \quad -10 \quad -21 \quad -12 \\ \quad \quad -1 \quad 1 \quad 9 \quad 12 \\ \hline 1 \quad -1 \quad -9 \quad -12 \quad 0 \end{array}$   
 $\begin{array}{r} 4 \downarrow 1 \quad -1 \quad -9 \quad -12 \\ \quad \quad 4 \quad 12 \quad 12 \\ \hline 1 \quad 3 \quad 3 \quad 0 \end{array}$   
 $x^2 + 3x + 3 = 0$   
 $x = \frac{-3 \pm \sqrt{9-12}}{2} = \frac{-3 \pm i\sqrt{3}}{2}$   
 2 real, 2 imaginary
- b) graph  
 5 real solutions  
 1 double root
- ⑮  $\frac{6x^3 + 15x^2 + 12x}{3x}$   
 $2x^2 + 5x + 6, x \neq 0$
- ⑯  $\begin{array}{r} 2 \downarrow 1 \quad 0 \quad 11 \quad 12 \\ \quad \quad 2 \quad 4 \quad 30 \\ \hline 1 \quad 2 \quad 15 \quad 42 \end{array}$   
 $x^2 + 2x + 15 + \frac{42}{x-2}$
- ⑰ 

	$x-3$		
$x^3$	$x^3$	$3x^2$	$-x$
	$0$	$0$	$0x$
$-3x^2$	$2x$	$-6$	$2$
	$x$	$-6$	
	$x+3$	$\frac{-x}{x^2+2}$	

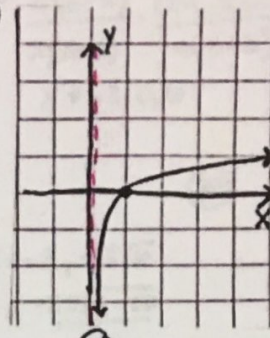
  
 or  
 $x^2 + 2 \overline{) x^3 - 3x^2 + x - 6}$   
 $\underline{-x^3 \quad 0 \quad 2x}$   
 $-3x^2 - x - 6$   
 $\underline{-3x^2 \quad -x \quad -6}$   
 $-x$
- ⑱  $(x+2)(x+2)(x-5)$   
 $(x^2 + 4x + 4)(x-5)$   
 $x^3 + 4x^2 + 4x - 5x^2 - 20x - 20$   
 $x^3 - x^2 - 16x - 20$
- ⑲  $f(0) = 12.5$   
 ↑  
 years since flood
- ⑳ (h)  $(2b+1)(b+5) = 20500$   
 $y_1$   $y_2$   
 intersection  
 $(20, 20500)$   
 dimensions  $20 \times 41 \times 25$
- ㉑



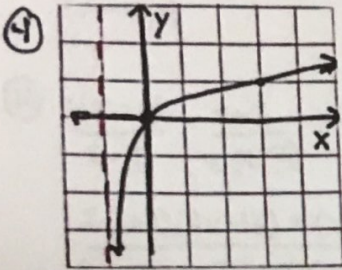
②  
D:  $\mathbb{R}$   
R:  $y > -1$   
HA:  $y = -1$   
(0,0)



③  
D:  $\mathbb{R}$   
R:  $y > 0$   
HA:  $y = 0$   
(0,1)



D:  $x > 0$   
R:  $\mathbb{R}$   
VA:  $x = 0$   
(1,0)



④  
D:  $x > -1$   
R:  $\mathbb{R}$   
VA:  $x = -1$   
(0,0)

⑤ growth  
initial: 5  
percent: 67%

⑥ decay  
initial: 1.023  
percent: 2%

⑬  $\log_{10} 1000 = x$   
 $1000 = 10^x$   
 $x = 3$

⑭  $\log_4 \frac{1}{16} = x$   
 $\frac{1}{16} = 4^x$   
 $x = -2$

⑧ growth  
initial: 400  
⑩  $\log_{25} 5 = x$   
 $5 = 25^x$

- ⑨  $\log_3 729 = 9$
- ⑩  $\ln \frac{1}{2} = -x$
- ⑪  $n = 10^3$
- ⑫  $e^0 = 1$

⑰  $\log_{27} 9 = x$   
 $9 = 27^x$   
 $3^2 = 3^{3x}$   
 $2 = 3x$   
 $\frac{2}{3} = x$

⑱  $\log_8 \frac{1}{2} = x$   
 $\frac{1}{2} = 8^x$   
 $2^{-1} = 2^{3x}$   
 $-1 = 3x$   
 $x = -\frac{1}{3}$

⑲  $\frac{1}{\ln e^{20}} = \frac{1}{20}$   
⑳  $-4^x = -64$   
 $4^x = 64$   
 $x = 3$

㉑ A) invers is a function  $5^x = 5^{2x}$   $x = \frac{1}{2}$   
B) limited to non negative x values  
C) limited to positive x values

㉒  $y_1, y_2, \text{ intersection}$   
 $x = 3.31$

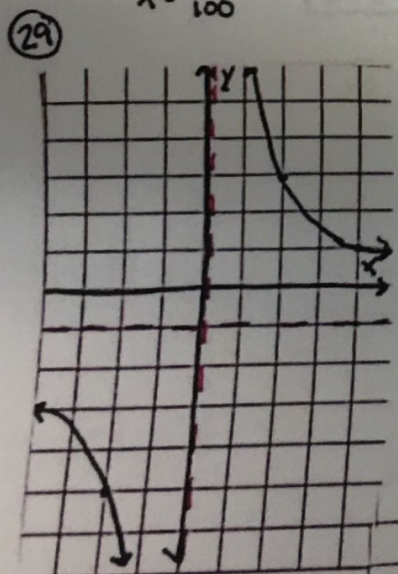
㉓  $\log x = -2$   
 $x = 10^{-2}$   
 $x = \frac{1}{100}$

㉔  $\log_9(x+1) = \log_9(2x-11)$   
 $x+1 = 2x-11$   
 $12 = x$

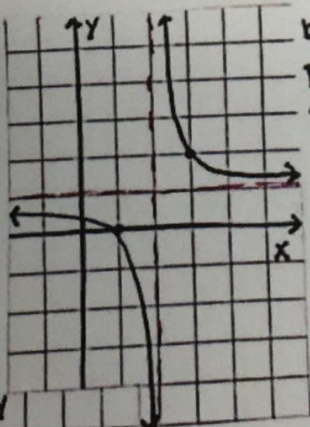
㉕  $\log_3(x+1) = 4$   
 $x+1 = 3^4$   
 $x = 80$   
㉖  $\ln(x+2) = \ln(4x)$   
 $x+2 = 4x$   
 $2 = 3x$   
 $\frac{2}{3} = x$

㉗  $e^{3x} = 20$   
 $3x \ln e = \ln 20$   
 $x = \frac{\ln 20}{3}$   
 $x = .999$

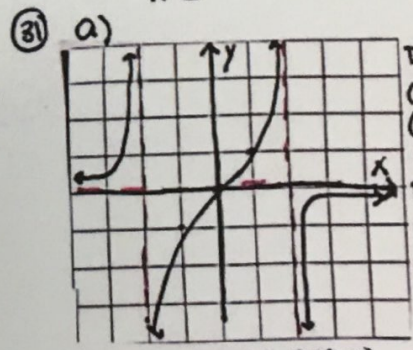
㉘  $(6^3)^{x+1} = 6^1$   
 $2x+2 = 1$   
 $2x = -1$   
 $x = -\frac{1}{2}$



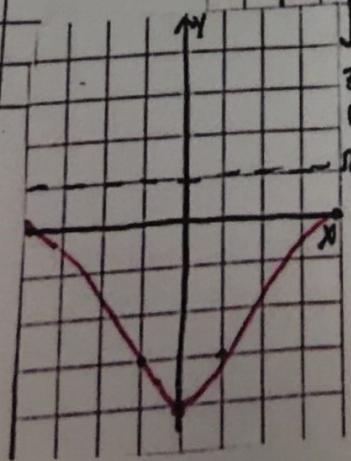
a)  
D:  $x \neq 0$   
R:  $y \neq -1$



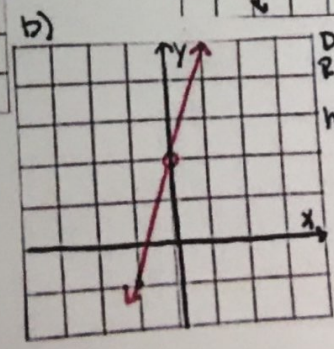
b)  
D:  $x \neq 2$   
R:  $y \neq 1$



D:  $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$   
R:  $\mathbb{R}$   
VA:  $x = \pm 2$   
HA:  $y = 0$



㉚  
c) D:  $\mathbb{R}$   
R:  $y \neq 1$   
HA:  $y = 1$



D:  $(-\infty, 0) \cup (0, \infty)$   
R:  $(-\infty, 2) \cup (2, \infty)$   
h.o.c: (0,2)

review #7 (continued)

32)  $x \neq 0$   
 $y \neq 0$   
 $\frac{x}{2y^2}$

33)  $d \neq 0$   
 $2d + 4$

34)  $x + 6 = 0$   
 $x = -6$   
 $x \neq -6$   
 $(x+3)(x+6)$   
 $\boxed{x+3}$

35)  $x \neq -2, 1$   
 $\frac{(x+1)(x+2)}{(x-1)} \cdot \frac{(x-1)}{(x+2)} = x+1$

36)  $\frac{2(x+2)}{x(x-6)} \cdot \frac{(x+6)(x-6)}{4(x+2)} = \frac{2(x+6)}{4x}$   
 $= \frac{x+6}{2x}$   
 $x \neq -2, 0, 6$

37)  $\frac{(x-4)(x+2)}{(x+3)} \cdot \frac{(x+3)}{(x-4)} = x+2$   
 $x \neq -3, 4$

38)  $\frac{(x+2)(x-2)}{(x+2)(x-5)} \cdot \frac{(x^2+2x-5)}{(x+2)}$   
 $x \neq -2, -1 \pm \sqrt{6}$   
 $x = \frac{-2 \pm \sqrt{4+20}}{2}$   
 $x \neq \frac{-2 \pm 2\sqrt{6}}{2}$   
 $\boxed{x-2}$

39)  $\frac{2+3x}{2x}$   
 $x \neq 0$   
 $x \neq -\frac{2}{3}$   
 $\frac{3x+2}{2x} \cdot \frac{3x+2}{2x} = \frac{3x+2}{2x}$

40)  $\frac{4x+13}{x-3} + \frac{x+2}{2(x+3)}$  LCD:  $2(x+3)(x-3)$   
 $x \neq \pm 3$

41)  $\frac{3x+7}{x-2} - \frac{3(x+5)}{2(x-2)}$   $x \neq 2$

$\frac{2(x+3)(4x+13) + (x-3)(x+2)}{2(x+3)(x-3)} = \frac{9x^2 + 11x + 72}{2(x+3)(x-3)}$

$\frac{2(3x+7) - 3x - 15}{2(x-2)} = \frac{6x+14-3x-15}{2(x-2)} = \frac{3x-1}{2(x-2)}$

42)  $\frac{2}{x-1} + \frac{3}{x-1} = \frac{5}{x-1}$   $x \neq 1$

43) b/c  $\frac{2}{2} = 1$

44)  $\frac{2}{(x+1)(x-1)} = \frac{4}{(x+1)}$   $x \neq \pm 1$   
 $2(x+1) = 4(x+1)(x-1)$   
 $2 = 4x - 4$   
 $6 = 4x$   
 $\boxed{x = \frac{3}{2}}$

45)  $\frac{3}{x+4} + \frac{5}{4} = \frac{18}{x+4}$  LCD =  $4(x+4)$   
 $x \neq -4$   
 $3(4) + 5(x+4) = 18(4)$   
 $12 + 5x + 20 = 72$   
 $5x = 40$   
 $\boxed{x = 8}$

46)  $2\left(\frac{1}{64}\right) = \frac{2}{64} = \frac{1}{32}$   
 $\left(\frac{1}{2}\right)^5 = \frac{1}{32}$

$2\left(\frac{1}{64}\right) = \frac{1}{32}$   
 words explaining