1

① Graph the integer on the number line.

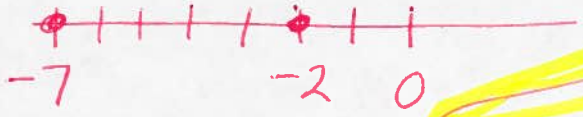
-5

② use < or > $-8 \; ? \; 7$

$-8 < 7$

③ use < or > $-7 \; ? \; -2$

$-7 < -2$



④ $|17| =$

$(17) =$

$17 =$

⑤ $|-56| =$

$(56) =$

$56 =$

⑥ $|0| =$

$(0) =$

$0 =$

Math 0301
Precalculus
Final Exam
Review
2-12-13

Step-by-Step
Solutions

(7.) $-(-14) =$

$14 =$

(8.) $-|-20| =$

$-(20) =$

$-20 =$

(9.) $-79 + (-17) =$

$-79 - 17 =$

$-96 =$

(10.) $-90 + 97 =$

$7 =$

(11.) $-10 + 8 =$

$-2 =$

(12.) $-160 + 103 =$

$-57 =$

(13.) $x + 4 = 13$

$x + 4 - 4 = 13 - 4$

$x = 9$

Ck $x + 4 = 13$

$(9) + 4 = 13$

$9 + 4 = 13$

$13 = 13$ ✓

(2.)

(14.) $z + 11 = -2$

$z + 11 - 11 = -2 - 11$

$z = -13$

Ck $z + 11 = -2$

$(-13) + 11 = -2$

$-13 + 11 = -2$

$-2 = -2$ ✓

(15.) $(-7)(-7)(-6) =$

$49(-6) =$

$-294 =$

(16.) $\frac{-80}{5} =$

$\frac{-16(5)}{5} =$

$-16 =$

(17.) $\frac{0}{-17} =$

$0 =$

(18.) $\frac{-6}{0} =$

undefined

4.

19. $-4a = 8$

$\frac{-4a}{-4} = \frac{8}{-4}$

$a = -2$

20. $-13d = 0$

$\frac{-13d}{-13} = \frac{0}{-13}$

$d = 0$

21. $\sqrt{64} =$

$\sqrt{(8)^2} =$

$8 =$

22. $7 + 5(-4) =$

$7 - 20 =$

$-13 =$

23. $-2 + 7(4 - 8) =$

$-2 + 7(-4) =$

$-2 - 28 =$

$-30 =$

24. $9 - 7^2 =$

$9 - (7)(7) =$

$9 - (49) =$

$9 - 49 =$

$-40 =$

(25.) $\sqrt{100} - \sqrt{9} =$

$(10) - (3) =$

$10 - 3 =$

$7 =$

5.

(26) $-10\sqrt{100} + |22 \div (-11)| - (22 - 10) =$

$-10(10) + |-2| - (12) =$

$-100 + (2) - 12 =$

$-100 + 2 - 12 =$

$-98 - 12 =$

$-110 =$

(27.) $$\frac{-19 + 5^2 - (-15)}{-6 - 9 + 18} =$$

$$\frac{-19 + (5)(5) - (-15)}{-6 - 9 + 18} =$$

$$\frac{-19 + 25 + 15}{-15 + 8} =$$

$$\frac{6 + 15}{-15 + 8} =$$

$$\frac{21}{-7} =$$

$-3 =$

(28) Eval if $X=8$ and $Y=9$

$10X^2+6Y=$

$10(8)^2+6(9)=$

$10(8)(8)+6(9)=$

$10(64)+6(9)=$

$640+54=$

$694=$

6.

(29) $10X^2-3X-5$ Eval if $X=-2$

$10(-2)^2-3(-2)-5=$

$10(-2)(-2)-3(-2)-5=$

$10(4)-3(-2)-5=$

$40+6-5=$

$46-5=$

$41=$

(30) Eval if $X=-9$

$9X-9(X+2)=$

$9(-9)-9((-9)+2)=$

$9(-9)-9(-9+2)=$

$9(-9)-9(-7)=$

$-81+63=$

$-18=$

(31) EVAL if $m=-8$, $n=3$

$-|4m+4n| =$

$-|4(-8)+4(3)| =$

$-|-32+12| =$

$-|-20| =$

$-(20) =$

$-20 =$

7.

(32) EVAL if $b=-5$, $a=3$, $c=6$

$b^2-4ac =$

$(-5)^2-4(3)(6) =$

$(-5)(-5)-4(3)(6) =$

$(25)-4(18) =$

$25-72 =$

$-47 =$

(33) EVAL if $X=5$, $Y=-1$, $Z=3$

$$\frac{X^2}{2Z+Y} =$$

$$\frac{(5)^2}{2(3)+(-1)} =$$

$$\frac{(5)(5)}{2(3)+(-1)} =$$

$$\frac{25}{6-1} =$$

$$\frac{25}{5} =$$

$$5 =$$

(34) Find all values for the variable that cause the expression to be undefined

$$\frac{9}{m+6} =$$

Set $m+6=0$

$m+6-6=0-6$

$m=-6$

(35) where is it undefined

$$\frac{x+5}{(x-2)(x-7)} =$$

9.

Set $(x-2)(x-7)=0$

$x-2=0$ OR $x-7=0$

$x-2+2=0+2$ OR $x-7+7=0+7$

$x=2$ OR $x=7$

(36.) simplify

$m-5m=$

$1m-5m=$

$-4m=$

(37) $(8x+1)+(-6x+11)=$

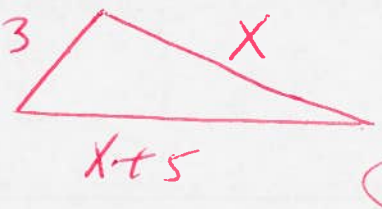
$8x+1-6x+11=$

$2x+12=$

(38) $(8x^8-8x^5+8x^2+4)+(9x^7+2x^5-3x)=$

$8x^8-8x^5+8x^2+4+9x^7+2x^5-3x=$

$8x^8+9x^7-6x^5+8x^2-3x+4=$

39. 

Perimeter

$P = S_1 + S_2 + S_3$

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

$P = x - 3 + x + 5 + x$

$P = 3x + 2$

10.

40. $(10y + 13) - (-6y + 9) =$

$10y + 13 + 6y - 9 =$

$16y + 4 =$

41. Simplify

$(9p^2 + 12p + 8) - (3p^2 + 4p - 6) =$

$9p^2 + 12p + 8 - 3p^2 - 4p + 6 =$

$6p^2 + 8p + 14 =$

42. $(-3x^3)(-8x^5) =$

$24x^{3+5} =$

$24x^8 =$

(43.) $(-7x^6)(5x^3)(9x^2) =$

$-315x^{6+3+2} =$

$-315x^{11} =$

11.

(44.) $(-2x^4)^5 =$

$(-2)^5 x^{20} =$

$(-2)(-2)(-2)(-2)(-2)x^{20} =$

$-32x^{20} =$

(45.) $3(10x+3) =$

$30x + 9 =$

(46.) $12x(-7x-6) =$

$-84x^2 - 72x =$

(47.) $11x^5(-9x^7 - 3x^5) =$

$-99x^{12} - 33x^{10} =$

(48.) FACTOR 30 Primes 2, 3, 5, 7, 11, 13, ...

$30 =$

$2 \cdot 3 \cdot 5 =$

$2\overline{)30}$

$3\overline{)15}$

$5\overline{)5}$

1

(49) Find GCF 100 and 60

100	2
50	2
25	5
5	5
1	

60	2
30	2
15	3
5	5
1	

$GCF = 2 \cdot 2 \cdot 5$

$= 20$

12.

(50) Simplify

$$\frac{20x^{10}}{2x^5} =$$

$$\frac{10(2)x^{10-5}}{2} =$$

$$10x^5 =$$

(51) $6z + 9 = 5z + 2$

$6z + 9 - 9 = 5z + 2 - 9$

$6z = 5z - 7$

$6z - 5z = 5z - 7 - 5z$

$z = -7$

(52) $-2A + 5 + 3A = 15 - 21$

$A + 5 = -6$

$A + 5 - 5 = -6 - 5$

$A = -11$

(53) $4(y+2) = 5(y-2)$

$4y + 8 = 5y - 10$

$4y + 8 - 8 = 5y - 10 - 8$

$4y = 5y - 18$

$4y - 5y = 5y - 18 - 5y$

$-1y = -18$

$\frac{-1y}{-1} = \frac{-18}{-1}$

$y = 18$

13.

(54) $-20 = n - 1$

$-20 + 1 = n - 1 + 1$

$-19 = n$

(55) $7y - 2(y-2) = 9y - (5y+8)$

$7y - 2y + 4 = 9y - 5y - 8$

$5y + 4 = 4y - 8$

$5y + 4 - 4 = 4y - 8 - 4$

$5y = 4y - 12$

$5y - 4y = 4y - 12 - 4y$

$y = -12$

14.

(56) $10y = 10$

$\frac{10y}{10} = \frac{10}{10}$

$y = 1$

(57.) $-19m = 57$

$\frac{-19m}{-19} = \frac{57}{-19}$

$m = -3$

(58) $9n - 6 = 30$

$9n - 6 + 6 = 30 + 6$

$9n = 36$

$\frac{9n}{9} = \frac{36}{9}$

$n = 4$

(59.) $61 = 9x - 2$

$61 + 2 = 9x - 2 + 2$

$63 = 9x$

$\frac{63}{9} = \frac{9x}{9}$

$7 = x$

(60) $5x - 8x + 10x = 28 - 10x + 3x$

$7x = 28 - 7x$

$7x + 7x = 28 - 7x + 7x$

$14x = 28$

$\frac{14x}{14} = \frac{28}{14}$

$x = 2$

15.

(61) $\frac{1}{2} = \frac{?}{8}$

$\frac{1}{2}\left(\frac{4}{4}\right) = \frac{?}{8}$

$\frac{4}{8} = \frac{?}{8}$

$4 = ?$

(62) $5\frac{8}{9} =$ mixed number to improper fraction

$\frac{9(5)+8}{9} =$

$\frac{45+8}{9} =$

$\frac{53}{9} =$

(63.) Reduce to lowest terms

$\frac{15}{27} =$

$\frac{3 \cdot 5}{3 \cdot 3 \cdot 3} =$

$\frac{5}{9}$ ✓

3 | 15
5 | 5
1

3 | 27
3 | 9
3 | 3
1

16.

(64) 21 minutes is what fraction of an hour

$\frac{21}{60} =$

$\frac{3 \cdot 7}{2 \cdot 2 \cdot 3 \cdot 5} =$

$\frac{7}{20} =$

3 | 21
7 | 7
1

2 | 60
2 | 30
3 | 15
5 | 5
1

(65.) $\frac{47}{8}$ = write as a mixed number

$5\frac{7}{8} =$

$5\frac{7}{8}$

8 | 47
−(40)
7 Rem

(66) Simplify

$\frac{18X^3YZ^2}{33XY^2Z^4} =$

$\frac{2 \cdot 3 \cdot 3 X^3 Y^1 Z^2}{3 \cdot 11 \; X^1 Y^2 Z^4} =$

$\frac{6 X^{3-1}}{11 Y^{2-1} Z^{4-2}} =$

$\frac{6X^2}{11Y^1Z^2}$ or $\frac{6X^2}{11YZ^2}$

17.

(67.) $\frac{15}{18} \cdot \frac{3}{5} =$

$\frac{3 \cdot 5}{2 \cdot 3 \cdot 3} \cdot \frac{3}{5} =$

$\frac{1}{2} =$

(68.) $\frac{-12x^4y^1}{10z^1} \cdot \frac{20z^1}{20x^2} =$

$\frac{-2 \cdot 2 \cdot 3x^4y^1}{2 \cdot 5z^1} \cdot \frac{z^1}{x^2} =$

$\frac{-6x^{4-2}y^1}{5} =$

$\frac{-6x^2y^1}{5} =$

(69.) $\left(\frac{5}{9}\right)^2 =$

$\left(\frac{5}{9}\right)\left(\frac{5}{9}\right) =$

$\frac{25}{81} =$

18.

(70.) $\left(\frac{m^3 n^1}{3^1 p^2}\right)^2 =$

$\frac{m^6 n^2}{3^2 p^4} =$

$\frac{m^6 n^2}{9 p^4} =$

(71.) $\sqrt{\frac{49}{121}} =$

$\frac{\sqrt{49}}{\sqrt{121}} =$

$\frac{\sqrt{(7)^2}}{\sqrt{(11)^2}} =$

$\frac{7}{11} =$

(72) $-\frac{16}{21} Y = -\frac{4}{15}$

$\frac{21}{-16}\left(-\frac{16}{21} Y\right) = \frac{21}{-16}\left(\frac{-4}{15}\right)$

$Y = \frac{3 \cdot 7}{-2 \cdot 2 \cdot 2 \cdot 2}\left(\frac{-2 \cdot 2}{3 \cdot 5}\right)$

$Y = \frac{7}{20}$

(73) Find the LCM
14 and 35

$2 \mid 14$
$7 \mid 7$
1

$5 \mid 35$
$7 \mid 7$
1

LCM = 2 · 5 · 7
= 70

(74) $30h^5k^1$ and $360h^2k^3$

$h^5 = h \cdot h \cdot h \cdot h \cdot h$
$k^1 = k$
$h^2 = h \cdot h$
$k^3 = k \, k \, k$

$2 \mid 30$
$3 \mid 15$
$5 \mid 5$
1

$2 \mid 360$
$2 \mid 180$
$2 \mid 90$
$3 \mid 45$
$3 \mid 15$
$5 \mid 5$
1

LCM = $2 \, 2 \, 2 \, 3 \, 3 \, 5 \, h^5 k^3$
= $360h^5k^3$

(75) $\frac{6}{21} - \frac{2}{21} =$

$\frac{6-2}{21} =$

$\frac{4}{21} =$

(76) $\frac{11}{12x} - \frac{4}{12x} =$

$\frac{11-4}{12x} =$

$\frac{7}{12x} =$

(77) $\frac{4}{8} + \frac{1}{12} + \frac{4}{15} =$

$\frac{4}{8}\left(\frac{15}{15}\right) + \frac{1}{12}\left(\frac{10}{10}\right) + \frac{4}{15}\left(\frac{8}{8}\right) =$

$\frac{60}{120} + \frac{10}{120} + \frac{32}{120} =$

$\frac{60+10+32}{120} =$

$\frac{102}{120} =$

$\frac{6 \cdot 17}{6 \cdot 20} =$

$\frac{17}{20} =$

2 | 8
2 | 4
2 | 2
1

2 | 12
2 | 6
3 | 3
1

3 | 15
5 | 5
1

LCD = $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5$

$= 120$

(78) $\frac{5}{12m} - \frac{5}{8m} =$

$\frac{5}{12m}\left(\frac{2}{2}\right) - \frac{5}{8m}\left(\frac{3}{3}\right) =$

$\frac{10}{24m} - \frac{15}{24m} =$

$\frac{10-15}{24m} =$

$\frac{-5}{24m} =$

2 | 12
2 | 6
3 | 3
1

2 | 8
2 | 4
2 | 2
1

LCD = $2 \cdot 2 \cdot 2 \cdot 3m$

$= 24m$

(79) $3\frac{4}{7} + 2\frac{4}{7} =$

$\frac{7(3)+4}{7} + \frac{7(2)+4}{7} =$

$\frac{21+4}{7} + \frac{14+4}{7} =$

$\frac{25}{7} + \frac{18}{7} =$

$\frac{25+18}{7} =$

$\frac{43}{7}$

$7 \overline{)43}$ → $6\frac{1}{7}$

$-(42)$

1 Rem

21

(80) $k + \frac{1}{5} = \frac{1}{2}$ LCD = 10

$10k + 10\left(\frac{1}{5}\right) = 10\left(\frac{1}{2}\right)$

$10k + 2(1) = 5(1)$

$10k + 2 = 5$

$10k + 2 - 2 = 5 - 2$

$10k = 3$

$\frac{10k}{10} = \frac{3}{10}$

$k = \frac{3}{10}$

(81) $\frac{17}{18} - \frac{7}{9} \cdot \frac{7}{8} =$

$\frac{17}{18} - \frac{49}{72} =$

$\frac{17}{18}\left(\frac{4}{4}\right) - \frac{49}{72} =$

$\frac{68}{72} - \frac{49}{72} =$

$\frac{68-49}{72} =$

$\frac{19}{72} =$

22.

(82) $\left(\frac{2}{3}\right)^2 + 5\frac{1}{3} \div 1\frac{1}{5} =$

$\left(\frac{2}{3}\right)^2 + \frac{16}{3} \div \frac{6}{5} =$

$\left(\frac{2}{3}\right)^2 + \frac{16}{3} \cdot \frac{5}{6} =$

$\left(\frac{2}{3}\right)\left(\frac{2}{3}\right) + \frac{8}{3} \cdot \frac{5}{3} =$

$\frac{4}{9} + \frac{40}{9} =$

$\frac{4+40}{9} =$

$\frac{44}{9}$

$9\overline{)44}$

$-(36)$

8 Rem

$4\frac{8}{9}$

(83) $0.259 + 6.2 =$

$$\begin{array}{r} 0.259 \\ +\ 6.200 \\ \hline 6.459 \end{array}$$

23.

(84) $41.64 + 1 + 73.29 + 18.494 =$

$$\begin{array}{r} 41.640 \\ 1.000 \\ 73.290 \\ 18.494 \\ \hline 134.424 \end{array}$$

(85) $14.2 - 2.38 =$

$$\begin{array}{r} 14.20 \\ -2.38 \\ \hline 11.82 \end{array}$$

(86) $-5.041 + (-4.173) =$

$-5.041 - 4.173 =$

$-9.214 =$

(87) $6.8 = X + 6.3$

$6.8 - 6.3 = X + 6.3 - 6.3$

$.5 = X$

(88) $-1.2 + X = 16$

$-1.2 + X + 1.2 = 16 + 1.2$

$X = 17.2$

24.

(89) $(0.5)(0.7) =$

$.35 =$

$$\begin{array}{r} 0.7 \\ \times\ 0.5 \\ \hline .35 \end{array}$$

(90) $(-0.503)(-0.03) =$

$0.01509 =$

(91) $(2.4)^3 =$

$(2.4)(2.4)(2.4) =$

$13.824 =$

(92) write in scientific notation

$69\,000 =$

$6.9 * 10^4 =$

(93) $-2.7X - 2.64 = -18.3$

$-2.7X - 2.64 + 2.64 = -18.3 + 2.64$

$-2.7X = -15.66$

$\frac{-2.7X}{-2.7} = \frac{-15.66}{-2.7}$

$X = 5.8$

(94) $-7.4Q + 1.3 = -28.2 - 1.5Q$

$-7.4Q + 1.3 - 1.3 = -28.2 - 1.5Q - 1.3$

$-7.4Q = -1.5Q - 29.5$

$-7.4Q + 1.5Q = -1.5Q - 29.5 + 1.5Q$

$-5.9Q = -29.5$

$\frac{-5.9Q}{-5.9} = \frac{-29.5}{-5.9}$

$Q = 5$

(95.) $5.23X - 8.42 = 8.52X - 25.857$

$5.23X - 8.42 + 8.42 = 8.52X - 25.857 + 8.42$

$5.23X = 8.52X - 17.437$

$5.23X - 8.52X = 8.52X - 17.437 - 8.52X$

$-3.29X = -17.437$

$\frac{-3.29X}{-3.29} = \frac{-17.437}{-3.29}$

$X = 5.3$

(96) $22(0.2n + 0.31) = 2.66 - (0.4 - 4.21n)$

$4.4n + 6.82 = 2.66 - 0.4 + 4.21n$

$4.4n + 6.82 = 2.26 + 4.21n$

$4.4n + 6.82 - 6.82 = 2.26 + 4.21n - 6.82$

$4.4n = 4.21n - 4.56$

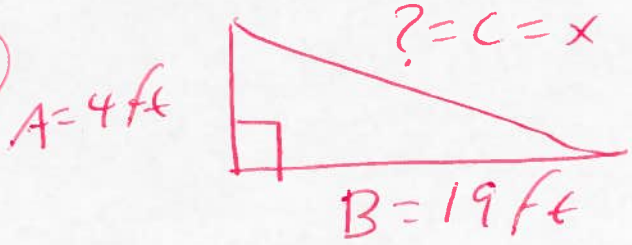
$4.4n - 4.21n = 4.21n - 4.56 - 4.21n$

$.19n = -4.56$

$\frac{.19n}{.19} = \frac{-4.56}{.19}$

$n = -24$

(97)



$A^2 + B^2 = C^2$

$(4)^2 + (19)^2 = (x)^2$

$16 + 361 = x^2$

$377 = x^2$

$\sqrt{377} = \sqrt{x^2}$

$19.416478784 = x$

(98) $\frac{48}{132} = \frac{12}{x}$

27

$48(x) = 132(12)$

$48x = 1584$

$\frac{48x}{48} = \frac{1584}{48}$

$x = 33$

(99) $\frac{1}{2} = \frac{n}{4\frac{1}{7}}$

$1(4\frac{1}{7}) = 2(n)$

$4\frac{1}{7} = 2n$

$\frac{29}{7} = 2n$

$\frac{1}{2}(\frac{29}{7}) = \frac{1}{2}(2n)$

$\frac{29}{14} = n$

$2\frac{1}{14} = n$

$14\overline{)29}$ $2\frac{1}{14}$

$-(28)$

1 Rem

(100) If 4 sandwich rolls cost $1.08 how much will 24 rolls cost?

28

$$\frac{4}{1.08} = \frac{24}{x}$$

$$4(x) = 1.08(24)$$

$$4x = 25.92$$

$$\frac{4x}{4} = \frac{25.92}{4}$$

$x = 6.48$ $

(101) $\frac{8}{10} = \frac{x}{100}$

$$8(100) = 10(x)$$

$$800 = 10x$$

$$\frac{800}{10} = \frac{10x}{10}$$

$80 = x$

(102) $\frac{11}{10} = \frac{x}{100}$

$$11(100) = 10(x)$$

$$1100 = 10x$$

$$\frac{1100}{10} = \frac{10x}{10}$$

$110 = x$

(103) What number is 10% of 300?

$$\frac{10}{100} = \frac{x}{300}$$

$$10(300) = 100(x)$$

$$3000 = 100x$$

$$\frac{3000}{100} = \frac{100x}{100}$$

$$30 = x$$

(104) 51 is 60% of what number?

$$\frac{51}{x} = \frac{60}{100}$$

$$51(100) = x(60)$$

$$5100 = 60x$$

$$\frac{5100}{60} = \frac{60x}{6}$$

$$85 = x$$

(105) What percent of 1080 is 54?

$$\frac{54}{1080} = \frac{x}{100}$$

$$54(100) = 1080(x)$$

$$5400 = 1080x$$

$$\frac{5400}{1080} = \frac{1080x}{1080}$$

$$5\% = x$$

30.

106) $70600(.02) =$

1412

107) $.06x = 41$

$\frac{.06x}{.06} = \frac{41}{.06}$

$x = 683.333333$

108) $\frac{30}{125} = \frac{x}{100}$

$30(100) = 125(x)$

$3000 = 125x$

$\frac{3000}{125} = \frac{125x}{125}$

$24 = x$

109) A camera costs $670. If the sales tax is 4% then find the tax and total.

$670(.04) = 26.80$ tax

$670 + 26.80 =$ total

$696.80 =$

110) $34 + .12(34) =$

$34 + 4.08 =$

$38.08 =$ mpg

Round 38.1 mpg

111. $23 - .35(23) =$

$23 - 8.05 =$

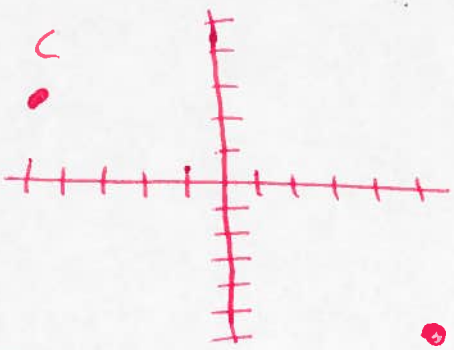
$14.95 =$

112) $2694 - .34(2694) =$

$2694 - 915.96 =$

$1778.04 =$

113.



$C = (-5, 2)$ $D = (5, -6)$

114) Graph $y = x - 2$

x	y
0	-2
2	0

$y = (0) - 2$

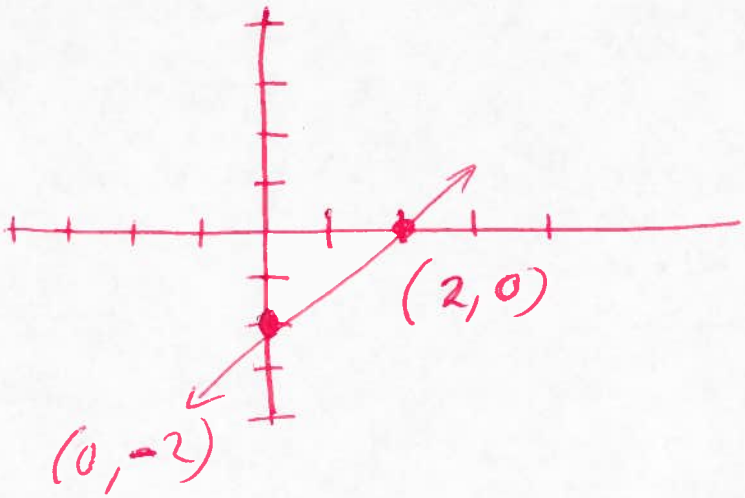
$y = 0 - 2$

$y = -2$

$y = (2) - 2$

$y = 2 - 2$

$y = 0$



(Free Formulas) ~~$4.45~~ A. Alvarez 32 4/25/06

Sum of Cubes

$A^3 + B^3 = (A + B)(A^2 - AB + B^2)$

Difference of Cubes

$A^3 - B^3 = (A - B)(A^2 + AB + B^2)$

Difference of Squares

$a^2 - b^2 = (a + b)(a - b)$

Slope

$m = \dfrac{y_1 - y_2}{x_1 - x_2}$

Slope Intercept

$y = mx + b$

Point Slope

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

Two Point

$y - y_1 = \dfrac{y_1 - y_2}{x_1 - x_2}(x - x_1)$

Distance

$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$

$\text{mid} = \left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right)$

Quadratic Formula

$ax^2 + bx + c = 0$

a = __ b = __ c = __

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

Absolute Value

$|x| = a \quad x = -a \quad \text{or} \quad x = a$

$|x| < a \quad -a < x < a$

$|x| > a \quad x < -a \quad \text{or} \quad x > a$

$\text{vertex} = \dfrac{\min}{\max} = \left(\dfrac{-b}{2a}, f\left(\dfrac{-b}{2a}\right)\right)$

Average Rate of Change x = A to x = B (little ↑ A, BIG ↑ B)

$\dfrac{f(B) - f(A)}{B - A}$

Compounded Continuous (population)

$A = Pe^{rt}$

Compounded monthly, daily

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

Half Life

$A = P\left(\tfrac{1}{2}\right)^{\frac{t}{N}}$

DOMAIN: $f(x) = \sqrt{AX+B}$, set $AX + B \geq 0$

$\sum_{X=a}^{b} (AX+B)$ — sum(seq(AX+B, X, a, b, 1))

$2^0 = 1$

$\dfrac{0}{2} = 0$

$\dfrac{2}{0}$ = undef

$\dfrac{0}{0}$ indeterminant

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

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

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

$\dfrac{f}{g}(x) = \dfrac{f(x)}{g(x)}$

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

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

If $\text{Log}_b(AX+B) = \text{Log}_b(CX+D)$ then $AX+B = CX+D$

If $\text{Log}_b(AX+B) = C$ then $b^C = AX+B$

wax on!

DOMAIN: $f(x) = \text{Log}(AX+B)$, set $AX+B > 0$

Difference Quotient

$\dfrac{f(x+h) - f(x)}{h}$

$\ln(A) + \ln(B) = \ln(AB)$

$\ln(A) - \ln(B) = \ln\left(\dfrac{A}{B}\right)$

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

$\ln(e) = 1$

$\ln(1) = 0$

$\ln(A) = \ln(B)$ then $A = B$

$\text{Log}_b(b) = 1$

Change of base

$\text{Log}_b(A) = \dfrac{\ln(A)}{\ln(b)}$

$\text{Log}_b(y) = x$ then $b^x = y$

$A^x = A^y$ then $x = y$ (same BASE, powers rule)

$i^2 = -1$

$\sqrt{-1} = i$

$_nC_r = \dfrac{n!}{r!(n-r)!}$

$_nP_r = \dfrac{n!}{(n-r)!}$

If $b^{AX+B} = b^{CX+D}$ then $AX+B = CX+D$

$(A+B)^N = C_{N0}(A)^N(B)^0 + C_{N1}(A)^{N-1}(B)^1 + \dots + C_{NN}(A)^0(B)^N$