TSI Videos

Steps for TSI Videos

WWW.ALVAREZMATHHELP.COM

TSI

Videos

Academic Departments

Math

Math 0200

Sort by Title a...z

Apply

Evaluate

TSiV

2

1. $|-7|-|-3|$ video 1
2. $|-2-(-8)|$ video 2
3. If $a=3$, $b=-5$ find $\frac{a-b}{b}$ video 33
4. If $x=5$, $y=3$ find $3x+5y$ video 34
5. $(3-2)-(2-3)$ video 73
6. $-2-(-8)$ video 78
7. $-(4-6)-(2-6)$ video 79
8. $\left(-\frac{1}{2}\right)^2$ video 100
9. $(8-2)-(2-8)$ video 101
10. If $x=-2$, $y=-6$ find x^2-y^2 video 107
11. If $y=-2x^2-5x+2$ Eval if $x=-4$ video 110
12. If $y=-2(x+4)^2-8$ Eval if $x=-6$ video 111
13. If $y=2(x-2)-10$ Eval if $x=-6$ video 132
14. If $f(x)=-2x^2-4x+6$ find $f(-5)$ video 158
15. If $h(x)=3x^2-7x-4$ find $h(-5)$ video 176
16. If $f(x)=|5x-4|$ find $f(-3)$ video 177
17. If $4x+2y=8$ is $(x,y)=(1,2)$ a solution video 201

Simplify

(18) $8\sqrt{5} + 3\sqrt{5} - \sqrt{5}$ video 36

(19) $15x^2y + 4xy^2 - 2xy^2 + 3x^2y$ video 62

(20) $13a - 15b - a + 2b$ video 63

(21) $(2a - 7b + 1) - (a - 7b + 2)$ video 64

(22) $(x^2 - 3x + 2) - (3x^2 - 5x - 1)$ video 65

(23) $7x^2 - (8x^2 - x)$ video 66

(24) $2x + 3x + y$ video 67

(25) $(x - 3) - 3(x + 2)$ video 68

(26) $(x^2 - 5) - (x^2 + 6)$ video 69

(27) $-4(9r + 7) + 6(3r + 5)$ video 70

(28) $7x + 6 + 3x - x + 4$ video 71

(29) $(12x - x) - (3y - 15y)$ video 77

Solve

30. $x-10=5x-10$ video 15

31. $3+N=2N$ find $8N$ video 16

32. $3x=7-5x$ video 17

33. $\frac{x+2}{3}=\frac{2x-1}{4}$ video 49

34. $2x-3(x-4)=-5$ video 72

35. $6-x=2(x-6)$ video 75

36. $2x+1=4x+9$ video 84

37. $2(2x+4)=12$ video 85

38. $2x+1=4x+1$ video 86

39. $2x+2=2x+8$ video 87

40. $6-x=-2(6-x)$ video 88

41. If $4x-8=2x$ find $12x$ video 98

42. $\frac{4x}{3}=6-\frac{x}{4}$ video 133

43. $\frac{x}{2}-\frac{1}{4}=3+\frac{5x}{6}$ video 142

44. $1.95x+10=1.90x+30$ video 151

45. $2(2x+4)=2x+20$ video 153

Solve

(46) $1 + 2x \leq 3x - 5$ video 18

(47) $3a > a + 8$ video 19

(48) $\frac{x}{4} - \frac{3x}{8} > 0$ video 20

(49) $0 < x - 3 < 5$ video 21

(50) $-2x + 1 < 21$ video 126

(51.) $18 - 3x \geq -12$ video 161

(52) $-4 < 2x + 6 < 4$ video 207

Simplify

53. $(1+xy)(1-xy)$ video 22

54. $(x-8y)(x-8y)$ video 23

55. $(4z+7)(2z+5)$ video 24

56. $(2x+1)(1-ax)$ video 25

57. $(3x-2)(4x+c)=12x^2+x-6$ find C video 91

58. $A^2+N+2B^2=(A+B)(A+2B)$ find N video 92

59. $\left(\frac{6x}{2}\right)^2$ video 99

60. $(4x-3y)^2$ video 102

61. $(2-xy)^2$ video 103

62. $x(x-2)-3x(x+2)$ video 104

63. $x(x-5)-4x(x-5)$ video 120

64. $(x-2)x+(2-x)3x$ video 121

65. $(x+2)(x^2-3x+5)$ video 157

Factor

(66) $a(x-y)+(x-y)$ factor video 26

(67) $b^2-6b-16$ factor video 27

(68) $25-\frac{x^2}{4}$ factor video 28

(69) $3x^3-9x^2+6x$ factor video 29

(70) $b^2-bc-2c^2$ factor video 30

(71) x^3-x^2-2x factor video 31

(72) $\frac{a^2}{4}-\frac{1}{9}$ factor video 32

(73) x^3+6x^2+8x factor video 105

(74) $2x^3+2x^2-8x-8$ factor video 106

(75) $25x^2-64y^2$ factor video 109

(76) $x^2-10x+16$ factor video 112

(77) $x^2-4x-12$ factor video 113

(78) $x^2+6x-16$ factor video 114

(79) $2x^2+4x-16$ factor video 117

(80) $8x^2y^2-4x^2y-10xy^2$ factor video 125

(81) $2x^2-32y^2$ factor video 127

(82) $3x^2-27y^2$ factor video 138

Solve

(83) $x^2 - x = 2$ Solve by factoring Video 108

(84) $2x^2 + 10x - 48 = 0$ Solve by factoring Video 115

(85) $x^2 - 6x - 40 = 0$ Solve by factoring Video 116

(86) $x^2 + 3 = 4x$ Solve by factoring Video 123

(87) $x^2 - 6x + 18 = 0$ Solve by using the Quadratic formula Video 180

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

Simplify

(88) $\frac{x^2-5x+6}{2x^2+4x-16}$ simplify video 118

(89) $\frac{3x-6}{x^2-4}$ simplify video 119

(90) $\frac{-24x^2y^2+12xy^2+28xy}{4xy}$ simplify video 124

(91) $\frac{-48x^2}{36x}$ simplify video 136

(92) $\frac{20x^3y^4}{30x^5y^2}$ simplify video 137

(93) $\frac{x}{4x-16} \div \frac{x^2-2x}{x-4}$ simplify video 139

(94) $\left(\frac{x^3}{18y}\right)\left(\frac{6y}{4x^2}\right)$ simplify video 143

(95) $(2x^2-5x-7) \div (x-1)$ use synthetic division video 154

(96) $\frac{m^2-16}{m^2+3m-28} \div \frac{m^2-3m-28}{m-4}$ simplify video 155

(97) $\left(\frac{4a^3b^{-9}c^4}{-8a^5b^{-2}c^{-2}}\right)^4$ simplify video 197

Solve

(98) $x+2y=7$ Solve video 50
$x=5y$

(99) $y=2x+4$ Solve video 51
$y=x-5$

(100) $x-y=0$ Solve video 52
$x+y=2$

(101) $x-y=0$ Solve video 53
$2x-y=1$

(102) $x+y=6$ Solve video 54
$x=2y$

(103) $2x-y=6$ Solve video 135
$2x+y=6$

(104) $2x-3y=2$ Solve video 194
$4x-6y=1$

(105) $N+D=100$ Solve Video 202
$.05N+.10D=9.50$

Solve

106 $|x+2|=4$ Solve video 55

107 $|x+2|<6$ Solve video 56

108 $|x+2|>8$ Solve video 57

109 $|x-2|=4$ Solve video 58

110 $|r-2|=5$ Solve video 162

111. $|x+9|<15$ Solve video 163

112 $|x+6|>16$ Solve video 164

113 $y=2x-2$ Graph video 165

114 $y=2x+4$ Graph video 210

115. $f(x)=x^2-4$ Graph video 188

116 $f(x)=x^2$ and $g(x)=(x-1)^2+4$ graph video 198

117 $\frac{ax-b}{a-1}=b$ find x video 9

118 $y=mb^2$ find b video 141

119 $2^{x+1}=16$ find x video 200

120. Find the equation of the line with slope $m=3$ thru point $(-3,6)$. Video 167

121. Find the equation of the line thru the two points $(10,800)$ and $(12,900)$ video 208

122. Find the distance between the two points $(5,-2)$ and $(2,2)$. Video 173

123. Find the midpoint between the two points $(4,-8)$ and $(-10,2)$. Video 183

124. $f(x)=-x^2+4x+5$ Find the y-intercept Video 186

125. $f(x)=-x^2+4x+5$ Find the x-intercept Video 187

(126) $f(x) = 4x^2 - 8x - 9$ and $g(x) = -2x^2 - 3x + 5$
find $(f-g)(x)$ video 159

(127) $f(x) = 2x^2 + 3x + 4$, find $f(x-1)$ video 160

(128) $f(x) = x^2 + 6$ find $f(a+h)$ video 178

(129) $f(x) = x^2 + 8x - 6$, find $\frac{f(x+h) - f(x)}{h}$ video 179

(130) $f(x) = 2x + 3$ and $g(x) = 5x + 8$
find $(f \circ g)(x)$ video 181

(131) $f(x) = 2x + 3$ and $g(x) = x^2 + 6x - 5$
find $(g \circ f)(x)$ video 182

(132) $f(x) = -1(x-2)^2 + 9$ find the vertex video 184

(133) $f(x) = -x^2 + 4x + 5$ find the vertex video 185
(use vertex formula)

(134) $f(x) = -250x^2 + 2500x + 50{,}000$ find the maximum value (use vertex formula) video 199

(135) $f(x) = 4x^2 - 3$ and $g(x) = 5x + 4$ (14)

find $(f \cdot g)(x)$ video 203

(136.) $f(x) = 3x - 6$ and $g(x) = x^2 - 4$

find $\left(\frac{f}{g}\right)(x)$ video 204

(137) $\sqrt{180}$ simplify video 168

(138) $\sqrt{169 x^6 y z^9}$ simplify video 169

(139) $\sqrt{3x^3}\sqrt{6x^2}$ simplify video 170

(140) $\frac{2}{8-\sqrt{3}}$ rationalize the denominator video 171

(141) $\sqrt{7-x} = x - 1$ solve video 172

(142) $\sqrt[3]{-27 a^{11} b^{13}}$ simplify video 174

step by step solutions

① $|-7| - |-3| =$

$(7) - (3) =$

$7 - 3 =$

$4 =$

10

② $|-2 - (-8)| =$

$|-2 + 8| =$

$|6| =$

$(6) =$

$6 =$

③ If $a = 3$, $b = -5$ find $\frac{a-b}{b}$

$\frac{a-b}{b} =$

$\frac{(3) - (-5)}{(-5)} =$

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

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

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

(4.) If $x=5$, $y=3$ find $3x+5y$

$3x+5y=$

$3(5)+5(3)=$

$15+15=$

$30=$

17.

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

$(1)-(-1)=$

$1+1=$

$2=$

(6.) $-2-(-8)=$

$-2+8=$

$6=$

(7.) $-(4-6)-(2-6)=$

$-(-2)-(-4)=$

$2+4=$

$6=$

8. $(-\frac{1}{2})^2 =$

$(-\frac{1}{2})(-\frac{1}{2}) =$

$\frac{1}{4} =$

9. $(8-2)-(2-8) =$

$(6)-(-6) =$

$6+6 =$

$12 =$

10. If $x=-2$, $y=-6$ find x^2-y^2

$x^2-y^2 =$

$(-2)^2-(-6)^2 =$

$(-2)(-2)-(-6)(-6) =$

$(4)-(36) =$

$4-36 =$

$-32 =$

(11) If $y = -2x^2 - 5x + 2$ eval if $x = -4$

(19)

$y = -2x^2 - 5x + 2$

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

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

$y = -2(16) - 5(-4) + 2$

$y = -32 + 20 + 2$

$y = -12 + 2$

$y = -10$

(12) If $y = -2(x+4)^2 - 8$ eval if $x = -6$

$y = -2(x+4)^2 - 8$

$y = -2((-6)+4)^2 - 8$

$y = -2(-6+4)^2 - 8$

$y = -2(-2)^2 - 8$

$y = -2(-2)(-2) - 8$

$y = -2(4) - 8$

$y = -8 - 8$

$y = -16$

(13.) If $y = 2(x-2) - 10$ eval if $x = -6$

(20)

$y = 2(x-2) - 10$

$y = 2((-6) - 2) - 10$

$y = 2(-6-2) - 10$

$y = 2(-8) - 10$

$y = -16 - 10$

$y = -26$

(14.) If $f(x) = -2x^2 - 4x + 6$ find $f(-5)$

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

$f(-5) = -2(-5)^2 - 4(-5) + 6$

$f(-5) = -2(-5)(-5) - 4(-5) + 6$

$f(-5) = -2(25) - 4(-5) + 6$

$f(-5) = -50 + 20 + 6$

$f(-5) = -30 + 6$

$f(-5) = -24$

(15.) If $h(x) = 3x^2 - 7x - 4$ find $h(-5)$

21

$h(x) = 3x^2 - 7x - 4$

$h(-5) = 3(-5)^2 - 7(-5) - 4$

$h(-5) = 3(-5)(-5) - 7(-5) - 4$

$h(-5) = 3(25) - 7(-5) - 4$

$h(-5) = 75 + 35 - 4$

$h(-5) = 110 - 4$

$h(-5) = 106$

(16.) If $f(x) = |5x - 4|$ find $f(-3)$

$f(x) = |5x - 4|$

$f(-3) = |5(-3) - 4|$

$f(-3) = |-15 - 4|$

$f(-3) = |-19|$

$f(-3) = (19)$

$f(-3) = 19$

(17) If $4x+2y=8$ is $(x,y)=(1,2)$ a solution?

$x \quad y$

22.

$4x+2y=8$?

$4(1)+2(2)=8$?

$4+4=8$?

$8=8$ ✓ Yes

(18) $8\sqrt{5}+3\sqrt{5}-\sqrt{5}=$ Simplify

$8\sqrt{5}+3\sqrt{5}-1\sqrt{5}=$

$11\sqrt{5}-1\sqrt{5}=$

$10\sqrt{5}=$

(19) $15x^2y+4xy^2-2xy^2+3x^2y=$

$15x^2y+4xy^2-2xy^2+3x^2y=$

$18x^2y+2xy^2=$

(20) $13a - 15b - a + 2b =$

$13a - 15b - 1a + 2b =$

$12a - 13b =$

(23)

(21.) $(2a - 7b + 1) - (a - 7b + 2) =$

$(2a - 7b + 1) - (1a - 7b + 2) =$

$2a - 7b + 1 - 1a + 7b - 2 =$

$1a - 1 =$

$a - 1 =$

(22.) $(x^2 - 3x + 2) - (3x^2 - 5x - 1) =$

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

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

(23.) $7x^2 - (8x^2 - x) =$

$7x^2 - 8x^2 + x =$

$-1x^2 + x =$

$-x^2 + x$

24. $2x+3x+y=$

$5x+y=$

24.

25. $(x-3)-3(x+2)=$

$x-3-3x-6=$

$1x-3-3x-6=$

$-2x-9=$

26. $(x^2-5)-(x^2+6)=$

$x^2-5-x^2-6=$

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

$-11=$

27. $-4(9r+7)+6(3r+5)=$

$-36r-28+18r+30=$

$-18r+2=$

28. $7x+6+3x-x+4=$

$7x+6+3x-1x+4=$

$9x+10=$

(29) $(12x - x) - (3y - 15y) =$

$(12x - 1x) - (3y - 15y) =$

$(11x) - (-12y) =$

$11x + 12y =$

(25)

(30) $x - 10 = 5x - 10$

$x - 10 + 10 = 5x - 10 + 10$

$x = 5x$

$x - 5x = 5x - 5x$

$1x - 5x = 0$

$-4x = 0$

$\frac{-4x}{-4} = \frac{0}{-4}$

$x = 0$

(31) $3 + N = 2N$

$3 + N - N = 2N - N$

$3 = 2N - 1N$

$3 = 1N$

$3 = N$

Find $8N$

Subs

$8N =$

$8(3) =$

24

(32) $3x = 7 - 5x$

$3x + 5x = 7 - 5x + 5x$

$8x = 7$

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

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

(33) $\frac{x+2}{3} = \frac{2x-1}{4}$

cross mult

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

$4x + 8 = 6x - 3$

$4x + 8 - 8 = 6x - 3 - 8$

$4x = 6x - 11$

$4x - 6x = 6x - 11 - 6x$

$-2x = -11$

$\frac{-2x}{-2} = \frac{-11}{-2}$

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

(34) $2x-3(x-4)=-5$

$2x-3x+12=-5$

$-1x+12=-5$

$-1x+\cancel{12}-\cancel{12}=-5-12$

$-1x=-17$

$\frac{-1x}{-1}=\frac{-17}{-1}$

$x=17$

(35.) $6-x=2(x-6)$

$6-x=2x-12$

$6-x-\cancel{6}=2x-12-6$

$-x=2x-18$

$-x-2x=\cancel{2x}-18-\cancel{2x}$

$-1x-2x=-18$

$-3x=-18$

$\frac{-3x}{-3}=\frac{-18}{-3}$

$x=6$

(36) $2x+1=4x+9$

$2x+1-1=4x+9-1$

$2x=4x+8$

$2x-4x=4x+8-4x$

$-2x=8$

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

$x=-4$

(28)

(37) $2(2x+4)=12$

$4x+8=12$

$4x+8-8=12-8$

$4x=4$

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

$x=1$

(38) $2x+1=4x+1$

$2x+1-1=4x+1-1$

$2x=4x$

$2x-4x=4x-4x$

$-2x=0$

$\frac{-2x}{-2}=\frac{0}{-2}$

$x=0$

(39) $2x+2 = 2x+8$

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

$2x = 2x+6$

$2x-2x = 2x+6-2x$

$0 \neq 6$

No solution

(29) 0

(40.) $6-x = -2(6-x)$

$6-x = -12+2x$

$6-x-6 = -12+2x-6$

$-x = 2x-18$

$-x-2x = 2x-18-2x$

$-1x-2x = -18$

$-3x = -18$

$\frac{-3x}{-3} = \frac{-18}{-3}$

$x = 6$

(41.) If $4x-8 = 2x$

$4x-8+8 = 2x+8$

$4x = 2x+8$

$4x-2x = 2x+8-2x$

$2x = 8$

find $12x$ → $\frac{2x}{2} = \frac{8}{2}$

$x = 4$

find $12x =$

$12(4) =$

$24 =$

(42) $\frac{4x}{3} = 6 - \frac{x}{4}$

LCD = 12

(30)

$\frac{4x}{3} = \frac{6}{1} - \frac{x}{4}$

$\frac{4x}{3}(12) = \frac{6}{1}(12) - \frac{x}{4}(12)$

$4x(4) = 6(12) - x(3)$

$16x = 72 - 3x$

$16x + 3x = 72 - 3x + 3x$

$19x = 72$

$\frac{19x}{19} = \frac{72}{19}$

$x = \frac{72}{19}$

(43) $\frac{x}{2} - \frac{1}{4} = 3 + \frac{5x}{6}$

LCD = 12

$\frac{x}{2} - \frac{1}{4} = \frac{3}{1} + \frac{5x}{6}$

$\frac{x}{2}(12) - \frac{1}{4}(12) = \frac{3}{1}(12) + \frac{5x}{6}(12)$

$x(6) - 1(3) = 3(12) + 5x(2)$

$6x - 3 = 36 + 10x$

$6x - 3 + 3 = 36 + 10x + 3$

$6x = 10x + 39$

$6x - 10x = 10x + 39 - 10x$

$-4x = 39$

$\frac{-4x}{-4} = \frac{39}{-4}$

$x = -\frac{39}{4}$

(44) $1.95x + 10 = 1.90x + 30$

$1.95x + 10 - 10 = 1.90x + 30 - 10$

$1.95x = 1.90x + 20$

$1.95x - 1.90x = 1.90x + 20 - 1.90x$

$.05x = 20$

$\frac{.05x}{.05} = \frac{20}{.05}$

$x = 400$

(45) $2(2x+4) = 2x + 20$

$4x + 8 = 2x + 20$

$4x + 8 - 8 = 2x + 20 - 8$

$4x = 2x + 12$

$4x - 2x = 2x + 12 - 2x$

$2x = 12$

$\frac{2x}{2} = \frac{12}{2}$

$x = 6$

(31.)

(46) $1+2x \leq 3x-5$

$+4 \quad 2x-1 \leq 3x-5-1$

$2x \leq 3x-6$

$2x-3x \leq 3x-6-3x$

$-1x \leq -6$

$\frac{-1x}{-1} \geq \frac{-6}{-1}$ Turn all signs

$x \geq 6$

$[6, \infty)$

(47) $3a > a+8$

$3a-a > a+8-a$

$3a-1a > 8$

$2a > 8$

$\frac{2a}{2} > \frac{8}{2}$

$a > 4$

(48) $\frac{x}{4} - \frac{3x}{8} > 0$

LCD = 8

$\frac{x}{4}(8) - \frac{3x}{8}(8) > 0(8)$

$x(2) - 3x(1) > 0$

$2x - 3x > 0$

$-1x > 0$

$\frac{-1x}{-1} < \frac{0}{-1}$

$x < 0$

(49) $0 < x - 3 < 5$

$0 + 3 < x - 3 + 3 < 5 + 3$

$3 < x < 8$

(33.)

(50) $-2x + 1 < 21$

$-2x + 1 - 1 < 21 - 1$

$-2x < 20$

$\frac{-2x}{-2} > \frac{20}{-2}$

$x > -10$

(51.) $18 - 3x \geq -12$

$18 - 3x - 18 \geq -12 - 18$

$-3x \geq -30$

$\frac{-3x}{-3} \leq \frac{-30}{-3}$

$x \leq 10$

(52) $-4 < 2x + 6 < 4$

$-4 - 6 < 2x + 6 - 6 < 4 - 6$

$-10 < 2x < -2$

$\frac{-10}{2} < \frac{2x}{2} < \frac{-2}{2}$

$-5 < x < -1$

(53) $(1+xy)(1-xy) =$

$1 - 1xy + 1xy - x^2y^2 =$

$1 - x^2y^2 =$

(54) $(x-8y)(x-8y) =$

$x^2 - 8xy - 8xy + 64y^2 =$

$x^2 - 16xy + 64y^2 =$

(55) $(4z+7)(2z+5) =$

$8z^2 + 20z + 14z + 35 =$

$8z^2 + 34z + 35 =$

(56) $(2x+1)(1-ax) =$

$2x - 2ax^2 + 1 - 1ax =$

$2x - 2ax^2 + 1 - ax =$

(57) $(3x-2)(4x+c) = 12x^2+x-6$ find c

$-2c = -6$

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

$c = 3$

(58) $A^2+N+2B^2 = (A+B)(A+2B)$ find N

$= A^2 + 2AB + AB + 2B^2$

$= A^2 + 2AB + 1AB + 2B^2$

$= A^2 + 3AB + 2B^2$

$N = 3AB$

(59) $\left(\frac{6x}{2}\right)^2 =$

$(3x)^2 =$

$(3x)(3x) =$

$9x^2 =$

60. $(4x-3y)^2 =$

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

$16x^2 - 12xy - 12xy + 9y^2 =$

$16x^2 - 24xy + 9y^2 =$

61. $(2-xy)^2 =$

$(2-xy)(2-xy) =$

$4 - 2xy - 2xy + x^2y^2 =$

$4 - 4xy + x^2y^2 =$

62. $x(x-2) - 3x(x+2) =$

$x^2 - 2x - 3x^2 - 6x =$

$1x^2 - 2x - 3x^2 - 6x =$

$-2x^2 - 8x =$

63. $x(x-5) - 4x(x-5) =$

$x^2 - 5x - 4x^2 + 20x =$

$1x^2 - 5x - 4x^2 + 20x =$

$-3x^2 + 15x =$

64. $(x-2)x + (2-x)3x =$

$x^2 - 2x + 6x - 3x^2 =$

$1x^2 - 2x + 6x - 3x^2 =$

$-2x^2 + 4x =$

37.

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

$x^3 - 3x^2 + 5x + 2x^2 - 6x + 10 =$

$x^3 - 1x^2 - 1x + 10 =$

$x^3 - x^2 - x + 10 =$

66. $a(x-y) + (x-y) =$ factor

$a(x-y) + 1(x-y) =$

$(x-y)(a+1) =$

67. $b^2 - 6b - 16 =$ factor

$(b+2)(b-8) =$

16 · 1
8, 2
4, 4

possible

(68) $25 - \frac{x^2}{4} =$ factor

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

38.

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

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

(69.) $3x^3 - 9x^2 + 6x =$ factor

2.1

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

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

(70) $b^2 - bc - 2c^2 =$ factor

2.1

$(b+c)(b-2c) =$

(71.) $x^3 - x^2 - 2x =$ factor

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

$x(x+1)(x-2) =$

(72) $\frac{a^2}{4} - \frac{1}{9} =$ factor

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

$\left(\frac{a}{2}\right)^2 - \left(\frac{1}{3}\right)^2 =$

$\left(\frac{a}{2} + \frac{1}{3}\right)\left(\frac{a}{2} - \frac{1}{3}\right) =$

(73) $x^3+6x^2+8x=$ factor

$x(x^2+6x+8)=$

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

8.1 2.4 Possibly

39.

(74) $2x^3+2x^2-8x-8=$ factor (Group)

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

$2x^2(x+1)+8(-x-1)=$

$2x^2(x+1)-8(x+1)=$

$(x+1)(2x^2-8)=$

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

$(x+1)(2)((x)^2-(2)^2)=$

$(x+1)(2)(x+2)(x-2)=$

$2(x+1)(x+2)(x-2)=$

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

(75) $25x^2-64y^2=$ factor

$(5x)^2-(8y)^2=$

$(5x+8y)(5x-8y)=$

76) $x^2 - 10x + 16 =$ factor

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

16.1
2.8
4.4

77) $x^2 - 4x - 12 =$ factor

$(x+2)(x-6) =$

12.1
6.2
3,4

78) $x^2 + 6x - 16 =$ factor

$(x-2)(x+8) =$

16.1
2.8
4,4

79) $2x^2 + 4x - 16 =$ factor

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

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

16.1
2,8
4,4

80) $8x^2y^2 - 4x^2y - 10xy^2 =$ factor

$2xy(4xy - 2x - 5y) =$

(81) $2x^2 - 32y^2 =$ factor

$2(x^2 - 16y^2) =$

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

$2(x+4y)(x-4y) =$

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

(4.1)

(82) $3x^2 - 27y^2 =$ factor

$3(x^2 - 9y^2) =$

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

$3(x+3y)(x-3y) =$

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

(83) $x^2 - x = 2$ solve

(2.1)

$x^2 - x - 2 = 2 - 2$

$x^2 - x - 2 = 0$

$(x+1)(x-2) = 0$

$x+1 = 0$ OR $x-2 = 0$

$x + 1 - 1 = 0 - 1$ OR $x - 2 + 2 = 0 + 2$

$x = -1$ OR $x = 2$

(84) $2x^2+10x-48=0$ Solve (42)

$2(x^2+5x-24)=0$

$2(x-3)(x+8)=0$

24·1
12·2
6·4
3·8
Possible

Set $2\neq 0$ OR $x-3=0$ OR $x+8=0$

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

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

(85) $x^2-6x-40=0$ Solve

$(x+4)(x-10)=0$

40·1
20·2
10·4
5·8
Possible

Set $x+4=0$ OR $x-10=0$

$x+4-4=0-4$ OR $x-10+10=0+10$

$x=-4$ OR $x=10$

(86) $x^2+3=4x$

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

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

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

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

Set

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

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

$x=1$ OR $x=3$

Possible
3·1

(87) $x^2 - 6x + 18 = 0$ Solve use the Quadratic formula

$a = 1, \; b = -6, \; c = 18$

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

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(18)}}{2(1)}$$

$$x = \frac{6 \pm \sqrt{36 - 72}}{2}$$

formula

$\sqrt{-1} = i$

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

$$x = \frac{6 \pm 6i}{2}$$

$$x = 3 \pm 3i$$

$x = 3 + 3i$ OR $x = 3 - 3i$

88. $\dfrac{x^2-5x+6}{2x^2+4x-16}$ = Simplify

$$\frac{x^2-5x+6}{2(x^2+2x-8)} =$$

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

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

89. $\dfrac{3x-6}{x^2-4}$ =

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

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

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

(90) $\dfrac{-24x^2y^2 + 12xy^2 + 28xy}{4xy}$ = simplify (45)

$\dfrac{-24x^2y^2}{4xy} + \dfrac{12xy^2}{4xy} + \dfrac{28xy}{4xy} =$

$-6xy + 3y + 7 =$

(91) $\dfrac{-48x^2}{36x}$ = simplify

$\dfrac{-4(12)x^2}{3(12)x^1} =$

$\dfrac{-4x}{3} =$

(92) $\dfrac{20x^3y^4}{30x^5y^2}$ = simplify

$\dfrac{2(10)x^3y^4}{3(10)x^5y^2} =$

$\dfrac{2y^2}{3x^2} =$

(93) $\frac{x}{4x-16} \div \frac{x^2-2x}{x-4} =$ Simplify

(46)

$\frac{x}{4x-16} \cdot \frac{x-4}{x^2-2x} =$

$\frac{x}{4(x-4)} \cdot \frac{(x-4)}{x(x-2)} =$

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

(94) $\left(\frac{x^3}{18y}\right)\left(\frac{6y}{4x^2}\right) =$ Simplify

Primes 2, 3, 5, 7

$2\overline{)18}$ $3\overline{)9}$ $3\overline{)3}$ 1

$2\overline{)6}$ $3\overline{)3}$ 1 $2\overline{)4}$ $2\overline{)2}$ 1

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

$\frac{x}{12} =$

$18 = 2 \cdot 3 \cdot 3$

$6 = 2 \cdot 3$

$4 = 2 \cdot 2$

(95.) $(2x^2-5x-7) \div (x-1)$ use synthetic division

(47)

$$\frac{2x^2-5x-7}{x-1} =$$

ODD

1	2	−5	−7
		2	−3
	2	−3	−10

rem

$$2x-3+\frac{-10}{x-1}$$

OR

$$2x-3-\frac{10}{x-1}$$

(96.) $\frac{m^2-16}{m^2+3m-28} \div \frac{m^2-3m-28}{m-4} =$

$$\frac{m^2-16}{m^2+3m-28} \cdot \frac{m-4}{m^2-3m-28} =$$

$$\frac{(m+4)(m-4)}{(m-4)(m+7)} \cdot \frac{(m-4)}{(m+4)(m-7)} =$$

$$\frac{m-4}{(m+7)(m-7)} =$$

97. $\left(\frac{4a^3b^{-9}c^4}{-8a^5b^{-2}c^{-2}}\right)^4 =$

48

$\left(\frac{4a^3c^4b^2c^2}{-8a^5b^9}\right)^4 =$

$\left(\frac{4a^3c^6b^2}{-8a^5b^9}\right)^4 =$

$\left(\frac{1c^6}{-2a^{5-3}b^{9-2}}\right)^4 =$

$\left(\frac{c^6}{-2a^2b^7}\right)^4 =$

$\frac{c^{24}}{(-2)^4a^8b^{28}} =$

$\frac{c^{24}}{16a^8b^{28}} =$

(98) $x + 2y = 7$ Soln by subst

$x = 5y$

$(5y) + 2y = 7$

$5y + 2y = 7$

$7y = 7$

$\frac{7y}{7} = \frac{7}{7}$

$y = 1$

Subst

$x = 5y$

$x = 5(1)$

$x = 5$

$(x, y) = (5, 1)$

(99) $y = 2x + 4$

$y = x - 5$

Soln Subst

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

$2x + 4 = x - 5$

$2x + 4 - 4 = x - 5 - 4$

$2x = x - 9$

$2x - x = x - 9 - x$

$1x = -9$

$x = -9$

Subst

$y = 2x + 4$

$y = 2(-9) + 4$

$y = -18 + 4$

$y = -14$

$(x, y) = (-9, -14)$

(100) $x-y=0$
$x+y=2$

$2x+0=2$
$2x=2$
$\frac{2x}{2}=\frac{2}{2}$
$x=1$

Solve

Subs x
$x-y=0$
$(1)-y=0$
$1-y=0$
$1-y-1=0-1$
$-y=-1$
$\frac{-y}{-1}=\frac{-1}{-1}$
$y=1$

$(x,y)=(1,1)$

(50)

(101) $x-y=0$
$2x-y=1$

$(x-y)(-1)=0(-1)$
$(2x-y)(1)=1(1)$

$-x+y=0$
$2x-y=1$

$x=1$

Solve

Subst
$x-y=0$
$(1)-y=0$
$1-y=0$
$1-y-1=0-1$
$-y=-1$
$\frac{-y}{-1}=\frac{-1}{-1}$
$y=1$

$(x,y)=(1,1)$

(102) $x+y=6$

$x=2y$

$(2y)+y=6$

$2y+y=6$

$3y=6$

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

$y=2$

Subst → $x=2y$

$x=2(2)$

$x=4$

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

51

(103) $2x-y=6$

$2x+y=6$

Subst →

$4x+0=12$

$4x=12$

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

$x=3$

Subst →

$2x-y=6$

$2(3)-y=6$

$6-y=6$

$6-y-6=6-6$

$-y=0$

$\frac{-y}{-1}=\frac{0}{-1}$

$y=0$

$(x,y)=(3,0)$

(104) $2x-3y=2$
$4x-6y=1$

$(2x-3y=2)(-6)$ Mult
$(4x-6y=1)(3)$

$-12x+18y=-12$
$12x-18y=3$

$0+0=-9$

$0 \neq -9$

No Solution

(105) $N+D=100$
$.05N+.10D=9.50$

$(N+D)(-.10)=100(-.10)$ Mult
$(.05N+.10D)(1)=9.50(1)$

$-.10N-.10D=-10.00$
$.05N+.10D=9.50$

$-.05N=-.50$

$\frac{-.05N}{-.05}=\frac{-.50}{-.05}$

$N=10$

Subst →

$N+D=100$
$10+D=100$
$10+D-10=100-10$
$D=90$

$(N,D)=(10,90)$

106 $|x+2|=4$ Solve

$|x|=a$
$x=-a$ or $x=a$

$x+2=-4$ or $x+2=4$

$x+2-2=-4-2$ or $x+2-2=4-2$

$x=-6$ or $x=2$

107. $|x+2|<6$ Solve

$|x|<a$
$-a<x<a$

$-6<x+2<6$

$-6-2<x+2-2<6-2$

$-8<x<4$

108. $|x+2|>8$ Solve

$|x|>a$
$x<-a$ or $x>a$

$x+2<-8$ or $x+2>8$

$x+2-2<-8-2$ or $x+2-2>8-2$

$x<-10$ or $x>6$

109 $|x-2|=4$ Solve

$|x|=a$
$x=-a$ or $x=a$

$x-2=-4$ or $x-2=4$

$x-2+2=-4+2$ or $x-2+2=4+2$

$x=-2$ or $x=6$

(110) $|r-2|=5$ Solve

$|x|=a$
$x=-a$ or $x=a$

$r-2=-5$ OR $r-2=5$

$r-2+2=-5+2$ OR $r-2+2=5+2$

$r=-3$ OR $r=7$

(111.) $|x+9|<15$ Solve

$|x|<a$
$-a<x<a$

$-15<x+9<15$

$-15-9<x+9-9<15-9$

$-24<x<6$

(112.) $|x+6|>16$

$|x|>a$
$x<-a$ OR $x>a$

$x+6<-16$ OR $x+6>16$

$x+6-6<-16-6$ OR $x+6-6>16-6$

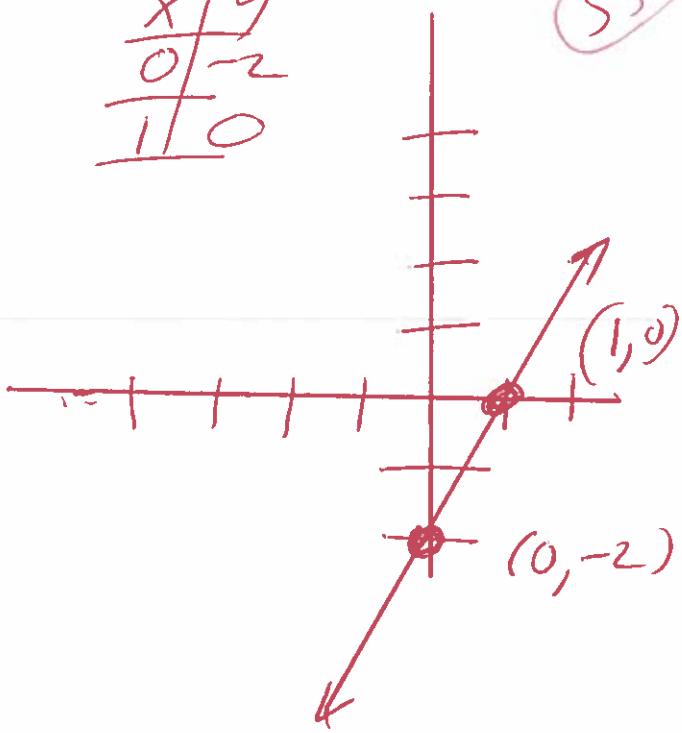
$x<-22$ OR $x>10$

(113) $y = 2x - 2$ graph

x	y
0	-2
1	0

$y = 2(0) - 2$
$y = 0 - 2$
$y = -2$

$y = 2(1) - 2$
$y = 2 - 2$
$y = 0$

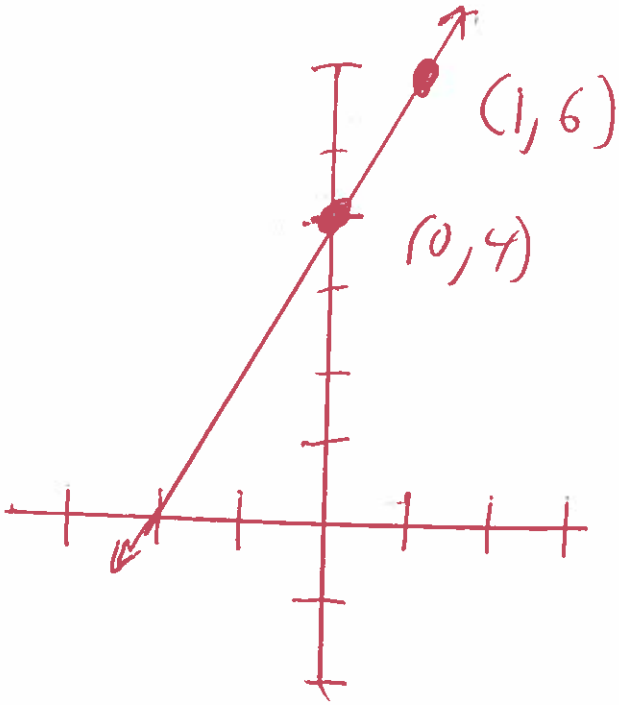


(114) $y = 2x + 4$ graph

x	y
0	4
1	6

$y = 2(0) + 4$
$y = 0 + 4$
$y = 4$

$y = 2(1) + 4$
$y = 2 + 4$
$y = 6$



(115) $f(x) = x^2 - 4$ graph

x	y
-1	-3
0	-4
1	-3

(56)

$f(-1) = (-1)^2 - 4$

$f(-1) = (-1)(-1) - 4$

$f(-1) = 1 - 4$

$f(-1) = -3$

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

$f(0) = (0)(0) - 4$

$f(0) = 0 - 4$

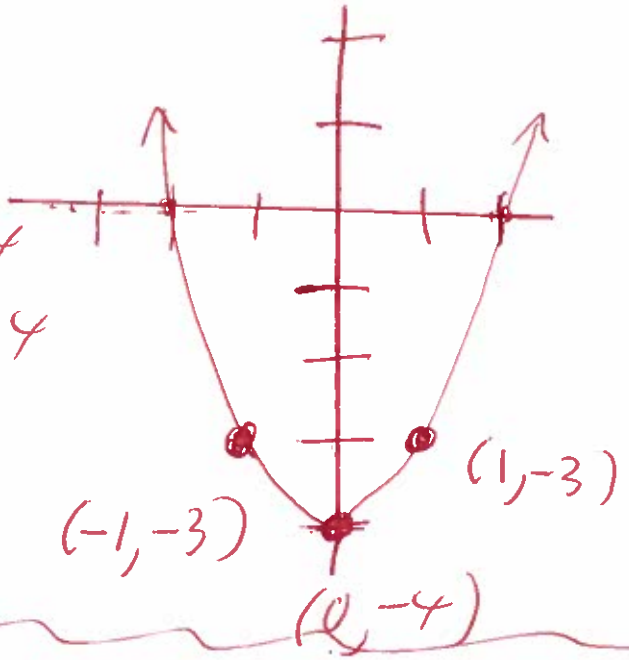
$f(0) = -4$

$f(1) = (1)^2 - 4$

$f(1) = (1)(1) - 4$

$f(1) = 1 - 4$

$f(1) = -3$



(116) $f(x) = x^2$ and $g(x) = (x-1)^2 + 4$

$f(-1) = (-1)^2$

$f(-1) = (-1)(-1)$

$f(-1) = 1$

$f(0) = (0)^2$

$f(0) = (0)(0)$

$f(0) = 0$

$f(1) = (1)^2$

$f(1) = (1)(1)$

$f(1) = 1$

x	y f(x)
-1	1
0	0
1	1

$g(x) = (x-1)^2 + 4$

$g(0) = (0-1)^2 + 4$

$g(0) = (-1)^2 + 4$

$g(0) = (-1)(-1) + 4$

$g(0) = 1 + 4$

$g(0) = 5$

$g(1) = (1-1)^2 + 4$

$g(1) = (0)^2 + 4$

$g(1) = (0)(0) + 4$

$g(1) = 0 + 4$

$g(1) = 4$

x	y g(x)
0	5
1	4
2	5

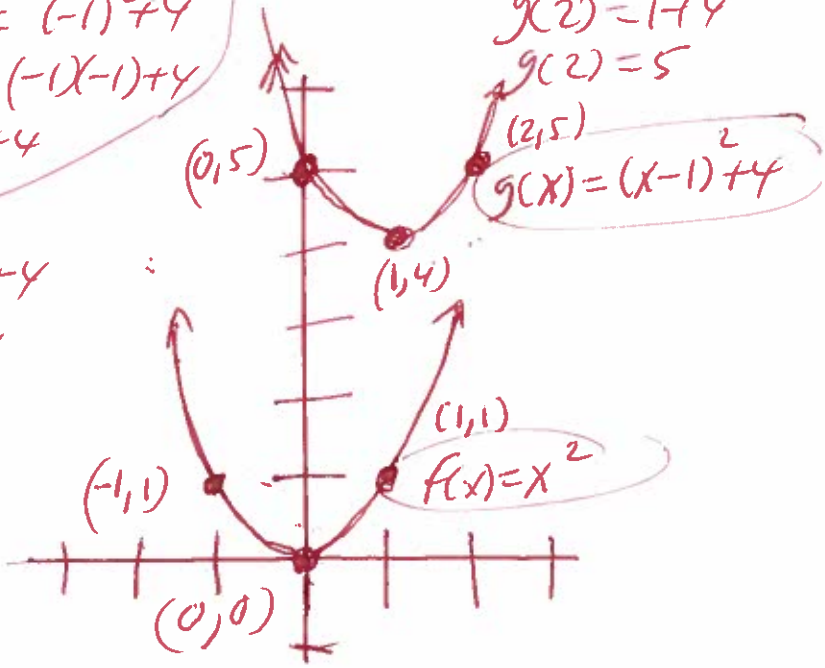
$g(2) = (2-1)^2 + 4$

$g(2) = (1)^2 + 4$

$g(2) = (1)(1) + 4$

$g(2) = 1 + 4$

$g(2) = 5$



(117) $\frac{ax-b}{a-1} = b$ Find x

(57)

$\frac{ax-b}{a-1} = \frac{b}{1}$

$1(ax-b) = b(a-1)$

$ax - b = ba - b$

$ax - b + b = ba - b + b$

$ax = ba$

$\frac{ax}{a} = \frac{ba}{a}$

$x = b$

(118) $y = mb^2$ Find b

$\frac{y}{m} = \frac{mb^2}{m}$

$\frac{y}{m} = b^2$

$\pm\sqrt{\frac{y}{m}} = \sqrt{b^2}$

$\pm\sqrt{\frac{y}{m}} = b$

$b = \sqrt{\frac{y}{m}}$ or $b = -\sqrt{\frac{y}{m}}$

(119) $2^{x+1} = 16$ find x

(52)

$2^{x+1} = 2^4$

$x+1 = 4$

$x+1-1 = 4-1$

$x = 3$

(120) Find the equation of the line with slope $m=3$ thru point $(-3, 6)$.
$x_1 \; y_1$

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

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

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

$y-6 = 3x+9$

$y-6+6 = 3x+9+6$

$y = 3x+15$

(121) Find the equation of the line thru the two points $(10, 800)$ and $(12, 900)$. (54)

x_1 y_1 x_2 y_2

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

$$y - (800) = \frac{(800) - (900)}{(10) - (12)}(x - (10))$$

$$y - 800 = \frac{800 - 900}{10 - 12}(x - 10)$$

$$y - 800 = \frac{-100}{-2}(x - 10)$$

$$y - 800 = 50(x - 10)$$

$$y - 800 = 50x - 500$$

$$y - 800 + 800 = 50x - 500 + 800$$

$$\boxed{y = 50x + 300}$$

(122) Find the distance between the two points $(5, -2)$ and $(2, 2)$

x_1 y_1 x_2 y_2

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

$$d = \sqrt{((5) - (2))^2 + ((-2) - (2))^2}$$

$$d = \sqrt{(5-2)^2 + (-2-2)^2}$$

$$d = \sqrt{(3)^2 + (-4)^2}$$

$$d = \sqrt{9 + 16}$$

$$d = \sqrt{25}$$

$$\boxed{d = 5}$$

(23) Find the midpoint between the two points $(4, -8)$ and $(-10, 2)$. (66)

x_1 y_1 x_2 y_2

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

$$\text{midpoint} = \left(\frac{(4)+(-10)}{2}, \frac{(-8)+(2)}{2}\right)$$

$$\text{midpoint} = \left(\frac{4-10}{2}, \frac{-8+2}{2}\right)$$

$$\text{midpoint} = \left(\frac{-6}{2}, \frac{-6}{2}\right)$$

midpoint $= (-3, -3)$

(24) $f(x) = -x^2+4x+5$ find the y-intercept

find y-intercept let $x=0$

$$f(0) = -(0)^2+4(0)+5$$

$$f(0) = -(0)(0)+4(0)+5$$

$$f(0) = 0+0+5$$

$$f(0) = 5$$

$(0, 5)$ ✓

(125) $f(x) = -x^2 + 4x + 5$ Find the x-intercept

find x-intercept let $y = 0$ (61.)

$y = f(x) = -x^2 + 4x + 5$

$0 = -x^2 + 4x + 5$

$-1(0) = -1(-x^2 + 4x + 5)$ Mult

$0 = x^2 - 4x - 5$

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

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

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

$x = -1$ OR $x = 5$

(126.) $f(x) = 4x^2 - 8x - 9$ and $g(x) = -2x^2 - 3x + 5$

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

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

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

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

$6x^2 - 5x - 14 =$

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

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

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

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

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

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

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

(128) $f(x) = x^2 + 6$ find $f(a+h)$

$f(a+h) = (a+h)^2 + 6$

$f(a+h) = (a+h)(a+h) + 6$

$f(a+h) = a^2 + ah + ah + h^2 + 6$

$f(a+h) = a^2 + 2ah + h^2 + 6$

(129) $f(x) = x^2 + 8x - 6$ find $\frac{f(x+h) - f(x)}{h}$

(63)

$$\frac{\left((x+h)^2 + 8(x+h) - 6\right) - \left(x^2 + 8x - 6\right)}{h} =$$

$$\frac{(x+h)^2 + 8(x+h) - 6 - x^2 - 8x + 6}{h} =$$

$$\frac{(x+h)(x+h) + 8x + 8h - 6 - x^2 - 8x + 6}{h} =$$

$$\frac{x^2 + xh + xh + h^2 + 8x + 8h - 6 - x^2 - 8x + 6}{h} =$$

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

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

$$2x + h + 8 =$$

(130) $f(x) = 2x+3$ and $g(x) = 5x+8$

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

$f(g(x)) =$

$f(5x+8) =$

$2(5x+8)+3 =$

$10x+16+3 =$

$10x+19 =$

(64)

(131.) $f(x) = 2x+3$ and $g(x) = x^2+6x-5$

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

$g(f(x)) =$

$g(2x+3) =$

$(2x+3)^2+6(2x+3)-5 =$

$(2x+3)(2x+3)+6(2x+3)-5 =$

$4x^2+6x+6x+9+12x+18-5 =$

$4x^2+24x+22 =$

(132) $f(x) = -1(x-2)^2 + 9$ Find the vertex

Let $x-2=0$

$x-2+2=0+2$

$x=2$

$f(2) = -1(2-2)^2+9$

$f(2) = -1(0)^2+9$

$f(2) = -1(0)(0)+9$

$f(2) = 0+9$

$f(2) = 9$

Vertex $= (2, 9)$

(133) $f(x) = -x^2+4x+5$ Find vertex use vertex formula $\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$

$a=-1,\ b=4,\ c=5$

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

$\left(\frac{-(4)}{2(-1)}, f\left(\frac{-(4)}{2(-1)}\right)\right) =$

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

$(2, f(2)) =$

$(2, -(2)^2+4(2)+5)$

$(2, -(2)(2)+4(2)+5)$

$(2, -4+8+5)$

$(2, 9)$

(134) $f(x) = -250x^2 + 2500x + 50000$ find the vertex use vertex formula

$a = -250, \; b = 2500, \; c = 50000$

$\left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right) =$ $\left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right)$ (66)

$\left(\frac{-(2500)}{2(-250)}, f\left(\frac{-(2500)}{2(-250)}\right)\right) =$

$\left(\frac{-2500}{-500}, f\left(\frac{-2500}{-500}\right)\right) =$

$(5, f(5)) =$

$(5, -250(5)^2 + 2500(5) + 50000)$

$(5, -250(5)(5) + 2500(5) + 50000)$

$(5, -6250 + 12500 + 50000)$

$(5, 56250)$

Vertex

(135) $f(x) = 4x^2 - 3$ and $g(x) = 5x + 4$

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

$f(x)g(x) =$

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

$20x^3 + 16x^2 - 15x - 12 =$

(136) $f(x) = 3x - 6$ and $g(x) = x^2 - 4$

Find $\left(\frac{f}{g}\right)(x) =$

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

$\frac{3x - 6}{x^2 - 4} =$

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

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

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

(137.) $\sqrt{180} =$ Prims. 2, 3, 5, 7, ...

$\sqrt{36 * 5} =$

$\sqrt{36}\sqrt{5} =$

$6\sqrt{5} =$

2	180
2	90
3	45
3	15
5	5
	1

(68.)

(138.) $\sqrt{169x^6yz^9} =$

$\sqrt{(13)^2x^6y^1z^8z^1} =$

$(13)^1x^3z^4\sqrt{yz} =$

$13x^3z^4\sqrt{yz} =$

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

$\sqrt{3x^3 \cdot 6x^2} =$

$\sqrt{18x^5} =$

$\sqrt{9 * 2 \cdot x^4x^1}$

$3x^2\sqrt{2x} =$

Prim 2, 3, 5, 7.

2	18
3	9
3	3
	1

(140) $\frac{2}{8-\sqrt{3}}$ rationalize the denominator

69.

$\left(\frac{2}{8-\sqrt{3}}\right)\left(\frac{8+\sqrt{3}}{8+\sqrt{3}}\right) =$

$\frac{16+2\sqrt{3}}{64+8\sqrt{3}-8\sqrt{3}-(\sqrt{3})^2} =$

$\frac{16+2\sqrt{3}}{64-3} =$

$\frac{16+2\sqrt{3}}{61} =$

$\frac{16}{61}+\frac{2\sqrt{3}}{61} =$

(141) $\sqrt{7-x} = x-1$

$(\sqrt{7-x})^2 = (x-1)^2$

$7-x = (x-1)(x-1)$

$7-x = x^2-1x-1x+1$

$7-x = x^2-2x+1$

$0 = x^2-2x+1-7+x$

$0 = x^2-x-6$

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

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

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

$x=-2$ $x=3$

Ck

$\sqrt{7-x} = x-1$

$\sqrt{7-(3)} = (3)-1$

$\sqrt{4} = 3-1$

$2 = 2$

yes Good

Ck

$\sqrt{7-x} = x-1$

$\sqrt{7-(-2)} = (-2)-1$

$\sqrt{7+2} = -2-1$

$\sqrt{9} = -3$

$3 \neq -3$

BAD

$\{3\}$

(142) $\sqrt[3]{-27a^{11}b^{13}}$ simplify (70)

$=$

$\sqrt[3]{(-3)^3 a^9 a^2 b^{12} b^1} =$

$(-3)^1 a^3 b^4 \sqrt[3]{a^2 b^1} =$

$-3a^3b^4\sqrt[3]{a^2b} =$