

## Summer Assignment Answers

I.

<p>a) Domain: <math>\{x x=0,4,5,7\}</math> Range: <math>\{y y=-2,-1,5,9,12\}</math> This relation is a function since every x-value is mapped to one y-value. (OR – This relation is a function since it passes the Vertical Line Test.)</p>	<p>b) Domain: <math>\{x x=-4,-2,-1,1,2,3\}</math> Range: <math>\{y y=-3,-1,0,1,3\}</math> This relation is a function since every x-value is mapped to one y-value. (OR – This relation is a function since it passes the Vertical Line Test.)</p>
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II.

a) 2	b) 4	c) The point does not lie in a quadrant.	d) 1
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III.

a) $2x^2 + 11x + 9$	b) $30x^2 - 56x + 10$	c) $9x^2 - 16$
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IV.

a) $2w - 3$	b) $2w^2 - 3w$
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V.

a) $4x^2(3x^5 + 1)$	b) $9(3x+2)(3x-2)$	c) $(x-9)(x-7)$
d) $(x+2)(x-9)$	e) $(5x-2)^2$	f) $(p^2+3)(2p+5)$
g) $3x^6y^{12}(2x+5y)(2x-5y)$	h) $(4x+5)(x-3)$	i) $(x+20)^2$
j) $(n^2+3)(3n-4)$	k) $6ab(2a^3 - 3a^2b + 4b^4)$	l) $(x+0.5)^2$
m) $x(4x+3)(x+10)$	n) $(4x-5)(x+1)$	o) $(2x+y)^2$
p) $(x^2+1)(x+1)(x-1)$	q) $(x-3)^2(5x-13)$	r) $(5+x)(5-x)$ or $-(x+5)(x-5)$
s) $(9a+11b)^2$	t) $(7x+10)(x-6)$	u) $(4x-5)(3y-7)$

VI.

$x=24$
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VII.

a) The triangle with sides 6, 8, and 12 is not a right triangle since $6^2 + 8^2 \neq 12^2$ .	b) The triangle with sides 9, 12, and 15 is a right triangle since $9^2 + 12^2 = 15^2$ .
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VIII.

a) $b+a$	b) $b \cdot a$	c) $a+(b+c)$
d) $a \cdot (b \cdot c)$	e) $a-a=0$	f) $a \cdot \frac{1}{a} = 1$

IX.

a) $x = -\frac{11}{9}, \frac{1}{3}$	b) no solution	c) $x = -1$
d) $x > 2$	e) $-1 < x \leq 6$	
f) $x \leq -\frac{7}{2}$ or $x \geq 2$	g) $-\frac{1}{7} < x < \frac{11}{7}$	

X.

a) 45

b) 21

XI.

a)  $x = \frac{77}{36}$

b)  $x = \frac{61}{41}$

c)  $x = \frac{212}{59}$

XII.

a) The lines have the same slopes.

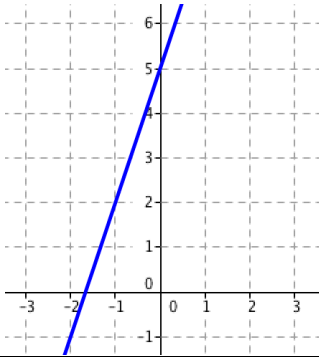
b) The lines have slopes that are opposite reciprocals.

c) Plug in zero for  $y$  and solve for  $x$ .

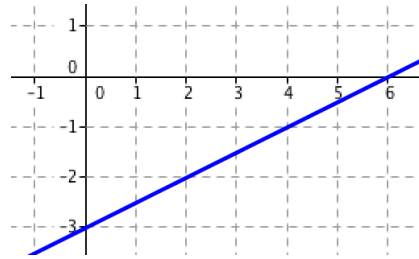
d) Plug in zero for  $x$  and solve for  $y$ .

XIII.

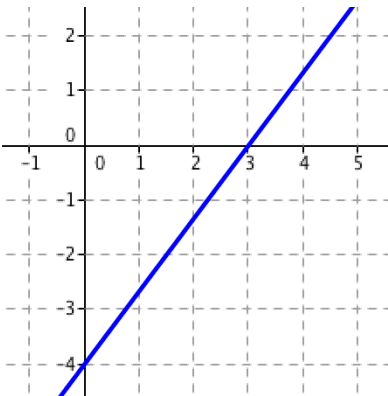
a)



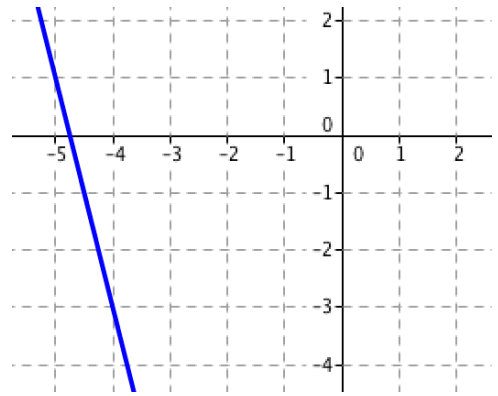
b)



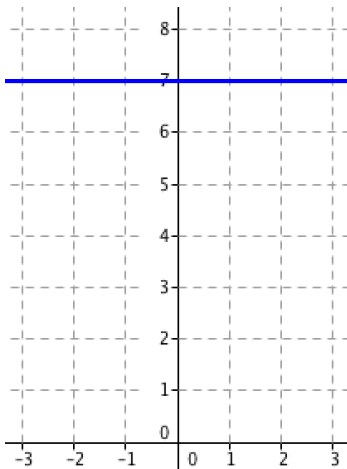
c)



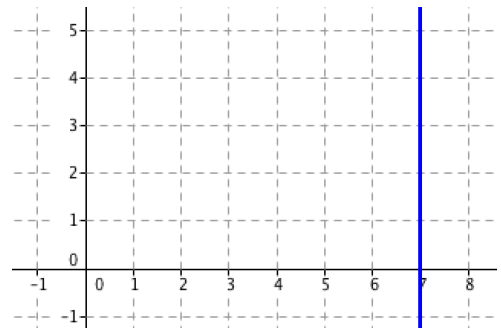
d)



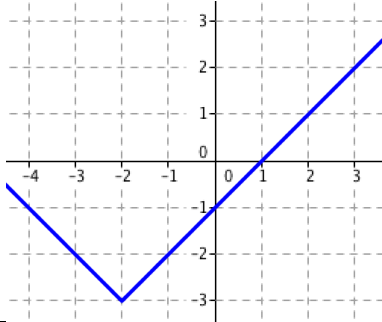
e)



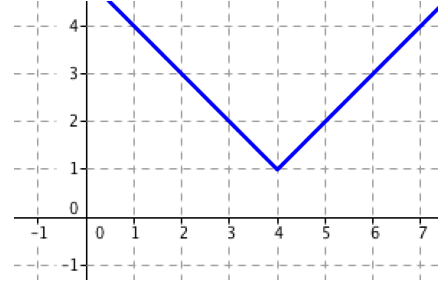
f)



g)



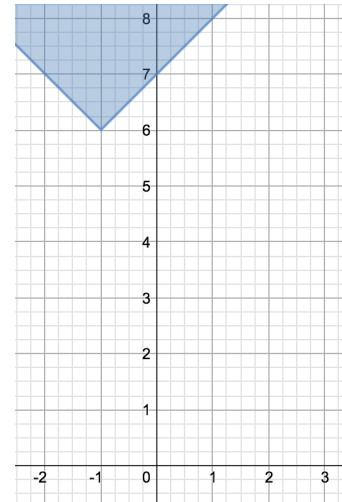
h)



i)



j)



XIV.

a)  $4x + 3y = 27$

b)  $x - 3y = 9$

c)  $7x + 3y = 49$

XV.

a)  $\left(\frac{1}{3}, -\frac{1}{6}\right)$

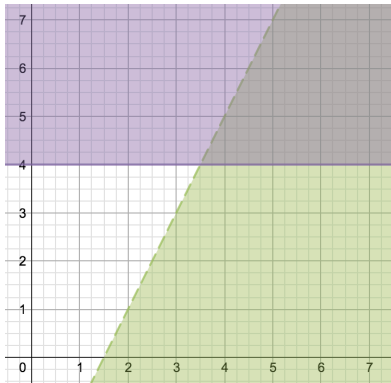
b) no solution

c) Infinitely many solutions. Any point on the line  $x + 2y = 4$  is a solution to this system.

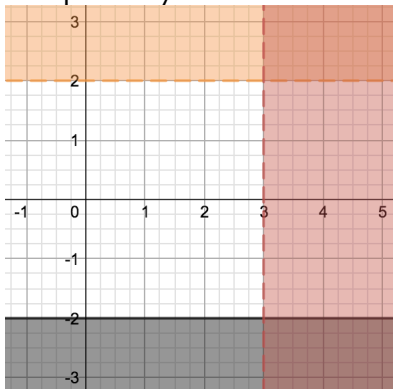
d)  $(-60, -84)$

XVI.

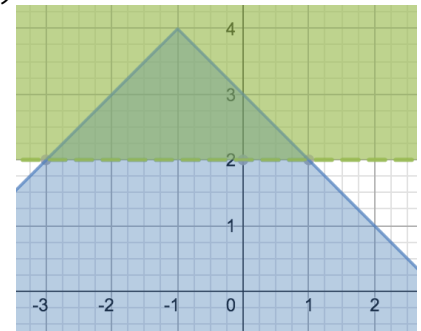
a)



b) No Solution since the three shaded regions do not all overlap in any area.



c)



XVII.

a) $\frac{1}{4x^8}$	b) $8x^8y^6$	c) $\frac{2p^3}{m^2q^2}$
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XVIII.

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

a) $x = \pm 3$	b) $x = -\frac{2}{3}, 6$	c) $x = \frac{3 \pm 2\sqrt{3}}{2}$
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