1. Is the ordered pair a solution to the given system of equations?

a. (-2, 14) $\left.\begin{array}{l} y = -2x + 4 \\ 6x + y = -2 \end{array}\right\}$

b. (5, -1) $\left.\begin{array}{l} -x + 2y = -7 \\ 3x + 6y = 9 \end{array}\right\}$

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2. Use graph paper to graph the solution to these systems of equations.
Show your solution as an ordered pair. (x, y)

a. $\left.\begin{array}{l} y = 3x - 2 \\ 2x + y = 8 \end{array}\right\}$

b. $\left.\begin{array}{l} x + 3y = 9 \\ 2x + y = -2 \end{array}\right\}$

c. $\left.\begin{array}{l} y = -\frac{2}{3}x + 1 \\ 2x + y = 5 \end{array}\right\}$

d. $\left.\begin{array}{l} y = -x + 6 \\ y = x - 4 \end{array}\right\}$

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3. Solve these systems of equations by the substitution method.

a. $\left.\begin{array}{l} x = 3y - 7 \\ 4x + 3y = 2 \end{array}\right\}$

b. $\left.\begin{array}{l} y = -3x - 7 \\ -4x - 2y = 12 \end{array}\right\}$

c. $\left.\begin{array}{l} x + y = -1 \\ 4x - y = 11 \end{array}\right\}$

d. $\left.\begin{array}{l} x = -y \\ 2x - 4y = 30 \end{array}\right\}$

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4. Solve these systems of equations using the Elimination by Addition method.

a. $\left.\begin{array}{l} 2x + y = 5 \\ x + 3y = -10 \end{array}\right\}$

b. $\left.\begin{array}{l} 6x - y = -14 \\ 3x + 3y = 0 \end{array}\right\}$

c. $\left.\begin{array}{l} -x - y = -9 \\ -2x + 3y = 7 \end{array}\right\}$

d. $\left.\begin{array}{l} 4x + 2y = -10 \\ 2x - 4y = -10 \end{array}\right\}$

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5. List the degree and coefficient of each term in the given polynomial.

a. $11x^4 - 9x^3 + 7x^2 - 5x$

b. $-13y^5 - 8y^3 + 15y - 9$

c. $81a^3 - 27a^2 - 9a + 3$

d. $m^4 + 2m^2 + 4m - 16$

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6. Add or subtract.

a. $(8x^3 + 2x^2 - 7) + (-6x^2 - 3x + 1)$

b. $(-y^2 + y - 6) - (-y^2 - 3y + 1)$

c. $(11x^3 + 5x^2 - 9x) + (-6x^3 - 7x^2 - 4x + 2)$

d. $(4x^3 + 7x^2) + (-x^3 - 6x)$

e. $(-9y^2 + 8y - 5) - (9y^2 - 2y - 1)$

f. $(9y^3 - y^2) - (y^2 + 2y)$

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7. Multiply.

a. $12a^5 \bullet -2a^9$

b. $-4x^3 \bullet x^5 \bullet 2x$

c. $4y(7y - 3)$

d. $-5a^2(2a^2 + a - 3)$

e. $(x - 7)(x - 5)$

f. $(y - 6)(y - 4)$

g. $(3x + 1)(4x + 5)$

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

i. $(6x - 3)^2$

j. $(2a - 5)(2a + 5)$

k. $(x + 7)(x - 7)$

l. $(y + 8)^2$

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8. Factor out the GCF:

a. $42x^2 - 7x$

b. $24x^2 - 8x$

c. $-18a^5 - 27a^3 + 9a^2$

d. $6m^7 + 15m^5 - 12m^2 - 21$

e. $18m^2n^4 - 12m^2n^3 + 24m^2n^2$

f. $-15a^3b^2 - 25a^2b$

9. Factor completely.

a. $x^2 + 4x - 32$ b. $4a^2 - 24a + 20$ c. $25x^2 - 16$

d. $x^2 - 6xy + 8y^2$ e. $2x^2 + 9x + 4$ f. $2x^2 - 18$

g. $x^2 - 14x + 49$ h. $3x^2 - 11x - 4$ i. $4x^2 - 100$

j. $y^2 - 10y + 25$ k. $x^2 + x - 72$ l. $9a^2 - 4$

m. $6x^2 - 13x - 5$ n. $4x^2 + 15x + 14$ o. $18x^2 - 8$

p. $x^2 - 8xy + 16y^2$ q. $9y^2 + 6y + 1$ r. $y^2 + 3y - 28$

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10. Solve by factoring:

a. $3x(x-1) = 0$ b. $3x^2 + 6x = 0$

c. $2x^2 - 3x + 1 = 0$ d. $x^2 = -5x$

e. $8x^2 - 2x - 3 = 0$ f. $x^2 - 2x = 35$

g. $2x^2 + 6x = 8$ h. $3x^2 + x - 2 = 0$

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11. Write an equation and solve algebraically:

a. Find 2 consecutive positive integers whose product is 210.

b. Find 2 consecutive negative integers whose product is 110.

c. Find 2 consecutive negative integers whose product is 132.

d. Find 2 consecutive even integers whose product is 120.

e. Find a quadratic equation with integer coefficients that has the given solution set. $\{-5, 5\}$

f. Find a quadratic equation with integer coefficients that has the given solution set. $\{1, 4\}$

1.a) No

1.b) Yes

2.a) Lines intersect at (2, 4)

2.b) Lines intersect at (- 3, 4)

2.c) Lines intersect at (3, -1)

2.d) Lines intersect at (5, 1)

3.a) (-1, 2)

3.b) (-1, -4)

3.c) (2, -3)

3.d) (5, -5)

4.a) (5, -5)

4.b) (-2, 2)

4.c) (4, 5)

4. d) (-3, 1)

5.a)

Term	Degree	Coefficient
$11x^4$	4	+11
$-9x^3$	3	-9
$+7x^2$	2	+7
$-5x$	1	-5

5.b)

Term	Degree	Coefficient
$-13y^5$	5	-13
$-8y^3$	3	-8
$+15y$	1	+15
-9	0	-9

5.c)

Term	Degree	Coefficient
$81a^3$	3	+81
$-27a^2$	2	-27
$-9a$	1	-9
+3	0	+3

5.d)

Term	Degree	Coefficient
m^4	4	+1
$+2m^2$	2	+2
$+4m$	1	+4
-16	0	-16

6.a) $8x^3 - 4x^2 - 3x - 6$

6.b) $4y - 7$

6.c) $5x^3 - 2x^2 - 13x + 2$

6.d) $3x^3 + 7x^2 - 6x$

6.e) $-18y^2 + 10y - 4$

6.f) $9y^3 - 2y^2 - 2y$

7.a) $-24a^{14}$

7.b) $-8x^9$

7.c) $28y^2 - 12y$

7.d) $-10a^4 - 5a^3 + 15a^2$

7.e) $x^2 - 12x + 35$

7.f) $y^2 - 10y + 24$

7.g) $12x^2 + 19x + 5$

7.h) $2x^3 - x^2 - 23x + 24$

7.i) $36x^2 - 36x + 9$

7.j) $4a^2 - 25$

7.k) $x^2 - 49$

7.l) $y^2 + 16y + 64$

8.a) $7x(6x - 1)$

8.b) $8x(3x - 1)$

8.c) $9a^2(-2a^3 - 3a + 1)$

8.d) $3(2m^7 + 5m^5 - 4m^2 - 7)$

8.e) $6m^2n^2(3n^2 - 2n + 4)$

8.f) $-5a^2b(3ab + 5)$

9.a) $(x + 8)(x - 4)$

9.b) $4(a - 5)(a - 1)$

9.c) $(5x - 4)(5x + 4)$

9.d) $(x - 4y)(x - 2y)$

9.e) $(2x + 1)(x + 4)$

9.f) $2(x + 3)(x - 3)$

9.g) $(x - 7)(x - 7)$ or $(x - 7)^2$

9.h) $(3x + 1)(x - 4)$

9.i) $4(x + 5)(x - 5)$

9.j) $(y - 5)(y - 5)$ or $(y - 5)^2$

9.k) $(x - 8)(x + 9)$

9.l) $(3a + 2)(3a - 2)$

9.m) $(3x + 1)(2x - 5)$

9.n) $(4x + 7)(x + 2)$

9.o) $2(3x - 2)(3x + 2)$

9.p) $(x - 4y)(x - 4y)$ or $(x - 4y)^2$

9.q) $(3y + 1)(3y + 1)$ or $(3y + 1)^2$

9.r) $(y + 7)(y - 4)$

10.a) x = 0 and x = 1

10.b x = -2 and x = 0

10.c) x = $\frac{1}{2}$ and x = 1

10.d) x = -5 and x = 0

10.e) x = $-\frac{1}{2}$ and x = $\frac{3}{4}$

10.f) x = -5 and x = 7

10.g) x = -4 and x = 1

10.h) x = -1 and x = $\frac{2}{3}$

11.a) x = 14 and x + 1= 15

11.b) x = -11 and x + 1 = -10

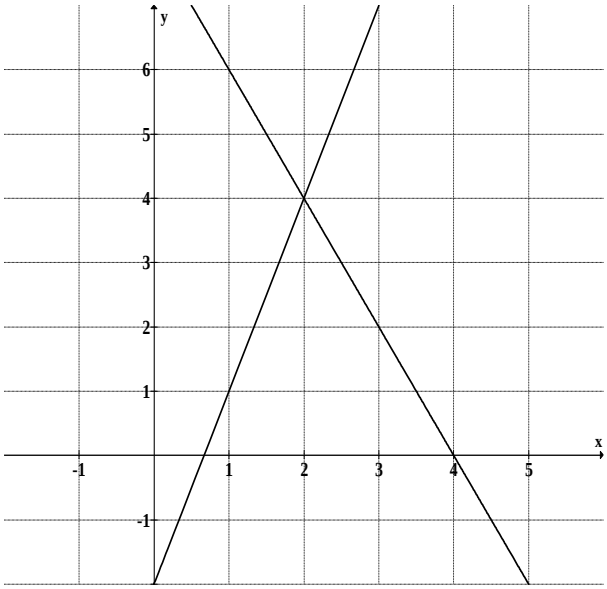
11.c) x = -12 and x +1 = -11

11.d) x = -12 or x = +10 and x+2 = -10 or x+2 = +12

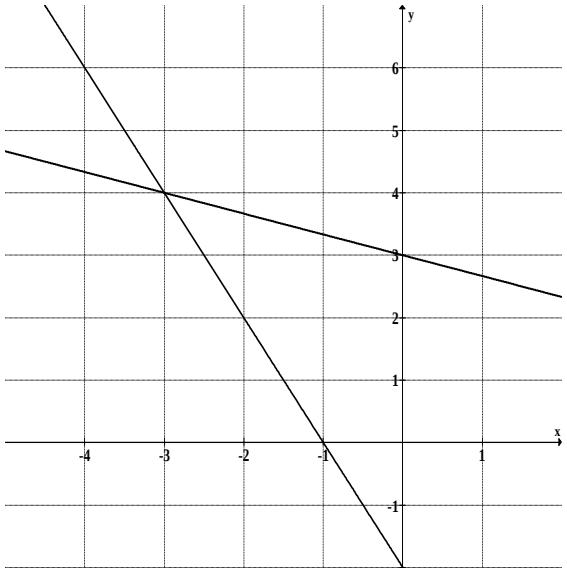
11.e) $x^2 - 25 = 0$

11.f) $x^2 - 5x + 4 = 0$

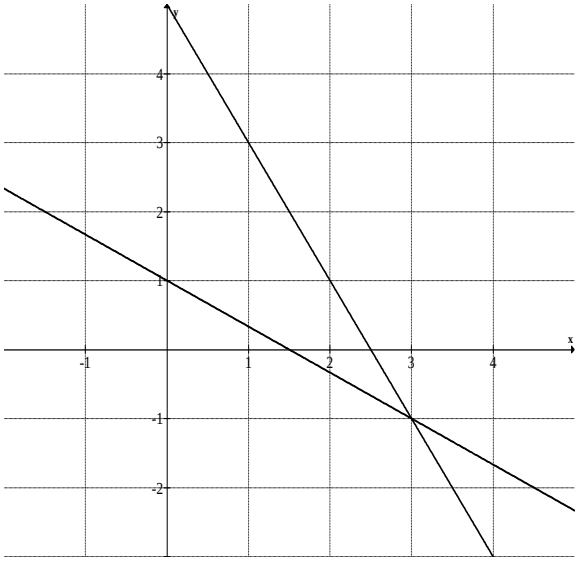
2a. 2.a) $\left.\begin{aligned} y &= 3x - 2 \\ 2x + y &= 8 \end{aligned}\right\}$ (2, 4)



2.b) $\left.\begin{aligned} x + 3y &= 9 \\ 2x + y &= -2 \end{aligned}\right\}$ (-3, 4)



2.c) $\left.\begin{aligned} y &= -\frac{2}{3}x + 1 \\ 2x + y &= 5 \end{aligned}\right\}$ (3, -1)



2.d) $\left.\begin{aligned} y &= -x + 6 \\ y &= x - 4 \end{aligned}\right\}$ (5, 1)