MATH SUMMER REVIEW

Algebra 2
Answers

Topic 1: Fractions

A. Perform the indicated operations and simplify whenever possible:

1. $\frac{11}{9} = 1\frac{2}{9}$

2. $\frac{37}{24} = 1\frac{13}{24}$

3. $\frac{29}{36}$

4. $\frac{19}{36}$

5. $\frac{164}{147} = 1\frac{17}{147}$

6. $\frac{5}{36}$

7. $\frac{68}{15} = 4\frac{8}{15}$

8. $\frac{36}{11} = 3\frac{3}{11}$

9. $\frac{5}{12}$

10. $\frac{99}{56} = 1\frac{43}{56}$

11. $\frac{143}{30} = 4\frac{23}{30}$

12. $\frac{215}{24} = 8\frac{3}{24}$

13. $\frac{113}{9} = 12\frac{5}{9}$

14. $\frac{3}{12} = 1\frac{1}{12}$

15. $\frac{5}{9}$

16. $\frac{23}{40}$

17. $\frac{112}{65} = 1\frac{47}{65}$

18. $\frac{8}{45}$

19. $\frac{1681}{924} = 1\frac{757}{924}$

20. $\frac{88}{45} = 1\frac{43}{45}$

21. $\frac{68}{1287}$

22. $\frac{831}{40} = 20\frac{31}{40}$

23. $\frac{1177}{60} = 19\frac{37}{60}$

24. 2

25. $\frac{159}{14} = 11\frac{5}{14}$

26. $\frac{95}{14} = 6\frac{11}{14}$

27. $\frac{503}{18} = 27\frac{17}{18}$

28. $\frac{55}{24} = 2\frac{7}{24}$

29. $\frac{356}{21} = 16\frac{20}{21}$

30. $\frac{13}{20}$

B. Perform the indicated operations and simplify whenever possible:

31. $\frac{5}{12}$

32. $\frac{80}{27} = 2\frac{26}{27}$

33. $\frac{27}{5} = 5\frac{2}{5}$

34. $\frac{56}{15} = 3\frac{11}{15}$

35. $\frac{21}{2} = 10\frac{1}{2}$

36. $\frac{68}{5} = 13\frac{3}{5}$

37. $\frac{9}{55}$

38. $\frac{378}{5} = 75\frac{3}{5}$

39. $\frac{200}{9} = 22\frac{2}{9}$

40. $\frac{851}{36} = 23\frac{23}{36}$

41. $\frac{5}{16}$

42. $\frac{3}{8}$

43. $\frac{22}{39}$

44. $\frac{7}{24}$

45. $\frac{13}{8} = 1\frac{5}{8}$

46. $\frac{17}{24}$

C. Perform the indicated operations and simplify whenever possible:

47. $6\frac{4}{21}$

48. $\frac{71}{18} = 3\frac{17}{18}$

49. $\frac{1}{48}$

50. $\frac{185}{21} = 8\frac{17}{21}$

51. $\frac{49}{10} = 4\frac{9}{10}$

52. $\frac{2041}{48} = 42\frac{25}{48}$

53. $\frac{151}{13} = 11\frac{8}{13}$

54. $\frac{443}{152} = 2\frac{139}{152}$

55. $\frac{260}{27} = 9\frac{17}{27}$

56. $\frac{188}{3} = 62\frac{2}{3}$

57. $12\frac{55}{63}$

58. $\frac{37}{6} = 6\frac{1}{6}$

Topic 2: Decimals

A. Change the fractions to decimals:

1.	0.6	2.	0.44	3.	$0.4\overline{6}$	4.	$0.\overline{69}$
5.	$2.\overline{1}$	6.	1.3125	7.	0.48	8.	$0.\overline{3}$
9.	$0.\overline{15}$	10.	2.3125	11.	$0.\overline{675}$	12.	$3.8\overline{6}$
13.	$0.7\overline{72}$	14.	$3.91\overline{6}$	15.	0.375	16.	$0.5\overline{3}$
17.	$0.\overline{571428}$	18.	5.7	19.	$0.7\overline{4}$	20.	11.75

B. Perform the indicated operations and simplify whenever possible:

21.	148.17	22.	19.48
22.	51.79	24.	10.029
25.	17.684	26.	13.89
27.	63.353	28.	19.08
29.	16.181	30.	28.34
31.	371.004	32.	509.041
33.	83.1977	34.	366.6267

C. Perform the indicated operations and simplify whenever possible:

35.	0.018	36.	0.000008
37.	0.000153	38.	0.1736
39.	48	40.	2.48155
41.	59.777	42.	53.35022
43.	1.9776	44.	0.16
45.	3.255	46.	0.7
47.	0.115	48.	204
49.	0.808	50.	0.033

Topic 3: Proportions and Percents

A. Solve each proportion

1.	$m = 36$	2.	$z = \frac{8}{5}$
3.	$x = 5$	4.	$c = 60$
5.	$x = 2.4$	6.	$x = 1.2$
7.	$x = 6$	8.	$x = 33\frac{1}{3}$
9.	$x = 48$	10.	$x = 12$

B. Solve Each Proportion Word Problem:

11. 25 lbs
12. 13.5
13. 2.97
14. 13 hrs
15. $2.58

C. Solve each percent

1. 2
2. 11.25
3. 60%
4. 44%
5. 75
6. 70
7. 12
8. 40%
9. 20
10. 14.4
11. 175%
12. $33\frac{1}{3}$
13. omit
14. 25%
15. $94.08.
16. 40
17. 11.2
18. $44.42
19. 27
20. $30,000.

Topic 4: Signed Numbers

A. Perform the indicated operations:

1. 4.9
2. –14
3. –2.1
4. –9
5. –7.6
6. –5
7. 10
8. 3
9. 17
10. –10
11. –2
12. 10
13. $\frac{7}{3} = 2\frac{1}{3}$
14. 19
15. 0
16. -11
17. –5
18. –17
19. $-\frac{1}{2}$
20. –16

B. Evaluate when $x = 12,\ y = -6,$ and $q = -4$

21. 2
22. –14
23. –16
24. 4
25. 14
26. 10

C. Combine like terms:

27. $5a + 4$
28. $6x + 3y + 57$
29. $13x - y$
30. $6xy + x$
31. $14\frac{1}{12}xy$
32. $4.87 + 7.52q$
33. $3.37r$
34. $18m - n$

D. Perform the indicated operations:

35. 10

36. –2

37. –40

38. –3.74

39. –20

40. $-3\frac{1}{2}$

41. $-\frac{98}{25} = -3\frac{23}{25}$

42. –120

43. 4

44. –4

45. –4

46. –6

47. $-\frac{16}{9} = -1\frac{7}{9}$

48. 3.2

49. $\frac{9}{8} = 1\frac{1}{8}$

50. –32.41

51. $-\frac{2}{9}$

52. $\frac{2}{11}$

53. $\frac{4}{3} = 1\frac{1}{3}$

54. $\frac{1}{3}$

Topic 5: Equations, Inequalities and Absolute Values:

A. Solve:

1. $n = 6$
2. $w = 2$
3. $y = -5$
4. $x = -30$
5. $x = 28$
6. $n = 100$
7. $x = -\frac{1408}{9} = -156\frac{4}{9}$
8. $n = -6$
9. $b = \frac{37}{3} = 12\frac{1}{3}$
10. $t = -\frac{11}{3}$
11. $m = 2$
12. $x = 0$
13. $x = -\frac{17}{4}$
14. $x = 2$
15. $b = 28$
16. $x = -3$
17. $x = 11$
18. $x = 10$
19. $x = \frac{12}{5}$
20. $x = -4$
21. $m = -9$
22. $a = \frac{19}{4}$
23. $y = 5$
24. $x = 5$
25. $x = 17$
26. $r = 2$

B. Solve:

27. $t < 5$
28. $y > \frac{7}{3}$
29. $x > -15$
30. $x < -\frac{1}{2}$
31. $m \geq -\frac{1}{2}$
32. $x \geq -\frac{5}{13}$
33. $x \geq -2$
34. $m > 11$
35. $s \geq -2$
36. $t < -\frac{13}{8}$
37. $x \geq -\frac{3}{5}$
38. $t \geq -10$
39. $x > \frac{4}{3}$
40. $x \geq -11$

C. Solve:

41. $a = -1$ or $a = -5$

42. $x = \frac{8}{3}$ or $x = \frac{4}{3}$

43. $x = 17$ or $x = -13$

44. $x = -9$ or $x = 15$

45. $x = -\frac{2}{3}$ or $x = -\frac{10}{3}$

46. $\{\ \}$

47. $x = \frac{1}{6}$ or $x = -\frac{5}{6}$

48. $x = \frac{5}{6}$ or $x = \frac{1}{2}$

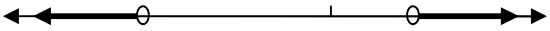
49. $x = 4$ or $x = -10$

50. $x = -4$ or $x = -44$

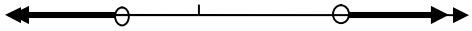
D. Solve and Graph the Solution:

51. $-3 < x < 6$

52. $x < -10$ or $x > 4$



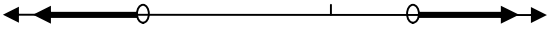
53. $x \le -4$ or $x \ge 6$



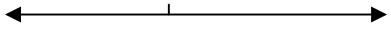
54. $-\frac{17}{2} \le x \le 9$

55. $-7 < x < 15$

56. $-14 < x \le 3$



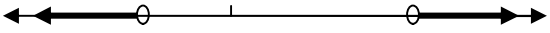
57. $\{\ \}$



58. $-\frac{14}{3} \le x \le 4$

59. $-6 < x < 5$

60. $x \le -\frac{4}{3}$ or $x \ge 4$



Topic 6: Basic Review

A. Chose the numbers from the following set which belong in each category:

$\left\{-2, 0, 1, 2, \frac{13}{12}, 6, 7, \sqrt{5}, \sqrt{-7}, \circledR\right\}$

1. $\{1, 2, 6, 7\}$

2. $\{0, 1, 2, 6, 7\}$

3. $\left\{-2, 0, 1, 2, \frac{13}{12}, 6, 7\right\}$

4. $\left\{\sqrt{5}, \circledR\right\}$

5. $\left\{\sqrt{-7}\right\}$

6. $\left\{-2, 0, 1, 2, \frac{13}{12}, 6, 7, \sqrt{5}, \circledR\right\}$

7. $\{2, 7\}$

8. $\{6\}$

9. $\{-2, 0, 2, 6\}$

10. $\{1, 7\}$

B. Name the Property that justifies each statement:

11. Transitive Property of Equality
12. Distributive Property
13. Associative Property of Addition
14. Associative Property of Multiplication
15. Symmetric Property of Equality
16. Commutative Property of Addition
17. Reflexive Property of Equality
18. Zero Product Property

C. Perform the indicated operations and simplify whenever possible:

19. 22
20. -2
21. -4
22. -3
23. $-\frac{1}{8}$
24. $-\frac{2}{3}$
25. $-\frac{169}{72}$
26. $\frac{5}{12}$
27. 4.97×10^{6}
28. $932,000,000$
29. Trinomial
30. Degree 7
31. 18
32. -5

Topic 7: Polynomials

A. Perform the indicated operations:

1. $-2x^2+4x+10$
2. $3x^2-3$
3. $-a-8b$
4. $5x^3-3x^2+5x-2$
5. $-19a+20b+4c$
6. $2x-y-3$
7. b
10. $7a^2-2a-7$
11. $-6x^2-12x+14$
12. $7a^2-2a-1$
13. $-5a^3+19a^2-12a-2$
14. $5y-4$
15. $15x+2y-25z$
16. $3a-8b$
17. $5ab+2ac-13bc$
18. $15r^2-20rs+3s^2$
19. $14m^4-2m^3-2m^2-2m+2$
20. $25x^2+20x-24$

B. Perform the indicated operations:

21. $30a^2$
22. $36b^6$
23. $-288b^5$
24. $6x^5y^4$
25. $21m^8n^3$
26. $104x^5y^3$
27. $-42a^4b^5$
28. $-270a^7b^3$
29. $-b^{10}$
30. $48m^8n^2$
31. $60a^7$
32. $4104a^5$

33. $-184m^3n^2$

34. x^2-6x+5

35. $2x^2-7x-15$

36. $2x^2+x-6$

37. $10x^2-29x+21$

38. $7x^2+47x-14$

39. $14x^2-29x+12$

40. $6x^2+29x+9$

41. $9x^2-21x+10$

42. x^2-6x+8

43. $5x^2-23x+12$

44. $2x^2-21x+27$

45. $15x^3+42x^2-4x-1$

46. $6a^3-15a^2-10a+3$

47. $4x^3+15x^2+11x-6$

48. $32a^3+12a^2-27a-7$

49. $2s^3+27s^2+85s+18$

50. $18x^3-24x^2-7x-5$

C. Factor each polynomial completely:

51. $3a(2a-5)$

52. $4a^4b(3ab+4)$

53. $x(x^4-x^2-1)$

54. $x^2(2x^3+3x^2-4)$

55. $x(x+2)(x+3)$

56. $(x-3)(x-5)$

57. $(x+12)(x-11)$

58. $(2-x)(1+x)$

59. $(2x+1)(x+3)$

60. $(7a-3b)(a+7b)$

61. $(xy-3)(xy-5)$

62. $(b^2-18)(b^2+5)$

63. $x(2x-3)(x-2)$

64. $(9x-2)(9x+2)$

65. $(7x+2)(7x+2)$

66. $(7-a)(7+a)$

67. $10x^2(2x+1)(2x-1)$

68. $3x(x-4)(x-7)$

69. $5(x+3)(x-3)$

70. $(x+4)(y-2)$

71. $(y-3)(x^2-2)$

72. $s(t+4)(t-5)$

73. $y^3(y+11)(y-5)$

74. $(y+1)(y-1)(2x-3)(2x+3)$

75. $3t^2(2-5t)$

D. Solve each quadratic equation:

76. $x = 0$ or $x = 4$

77. $x = 3$ or $x = -2$

59. $x = 3$ or $x = 4$

60. $x = 6$ or $x = -1$

61. $x = 3$ or $x = 2$

62. $x = 5$ or $x = -2$

63. $x = 10$ or $x = -10$

64. $x = 9$ or $x = -1$

65. $x = \frac{2}{5}$ or $x = -1$

66. $x = -\frac{2}{3}$ or $x = 4$

67. $x = -\frac{2}{3}$ or $x = \frac{1}{2}$

68. $x = 2$ or $x = -2$

69. $x = 2$ or $x = -2$

70. $x = -\frac{3}{5}$ or $x = 1$

71. $x = \frac{5}{3}$ or $x = -\frac{4}{5}$

72. $x = 6$ or $x = -2$

73. $x = 0$ or $x = 8$

74. $x = 6$ or $x = -4$

Topic 8: Graphing

A. Find the slope of the line containing the given points:

1. $m = \frac{3}{2}$

2. $m = -1$

3. $m = \frac{4}{5}$

4. $m = -4$

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

6. $m = \frac{3}{4}$

7. $m = -\frac{1}{2}$

8. $m = -\frac{2}{3}$

9. $m = -1$

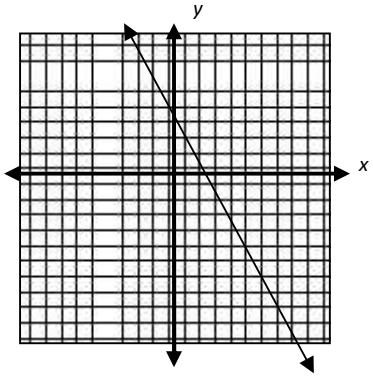
10. $m = -\frac{1}{2}$

11. $m = 0$

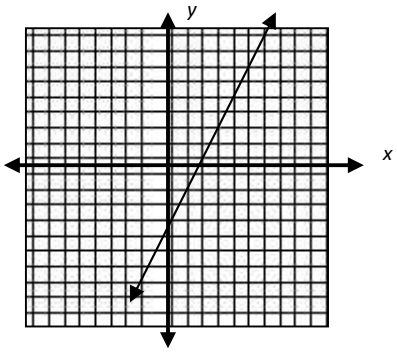
12. Undefined

B. Use the slope and the y-intercept to graph each equation:

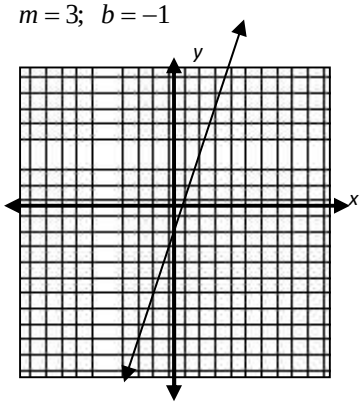
13. $m = -2;\ b = 4$



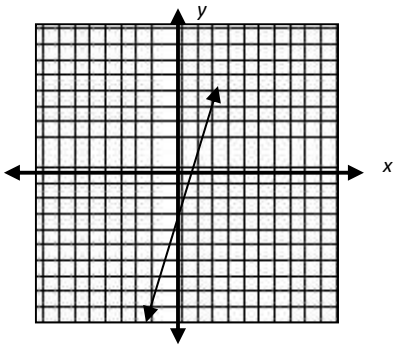
14. $m = 2;\ b = -4$



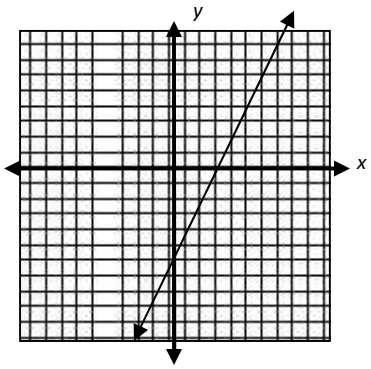
15. $m = 3;\ b = -1$



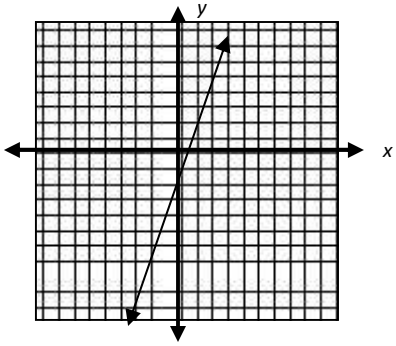
16. $m = 4;\ b = -3$



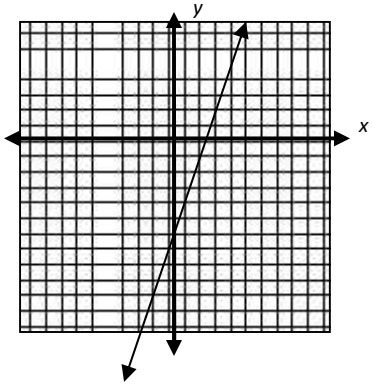
17. $m = 2;\ b = -6$



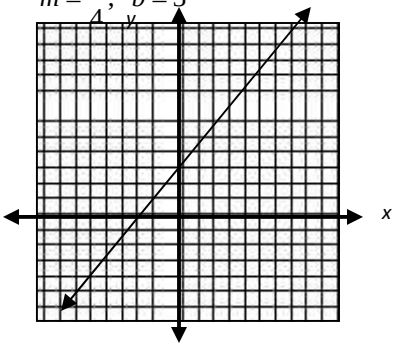
18. $m = 3;\ b = -2$



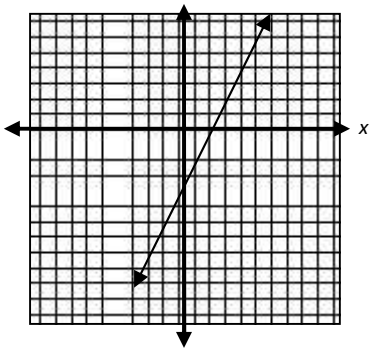
19. $m = 3;\ b = -6$



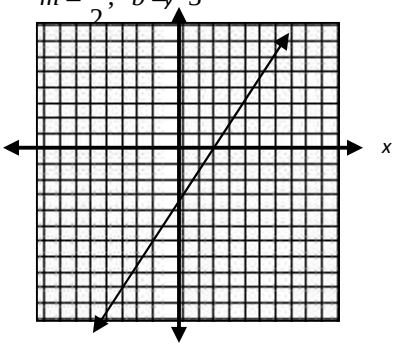
20. $m = \frac{5}{4};\ b = 3$



21. $m = 2;\ b = -3$



22. $m = \frac{3}{2};\ b = -3$



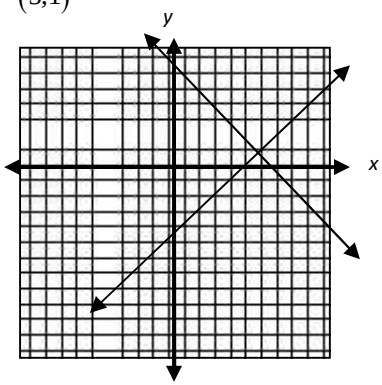
C. Determine if the lines are parallel:

23. parallel
24. not parallel
25. parallel
26. parallel
27. not parallel
28. parallel

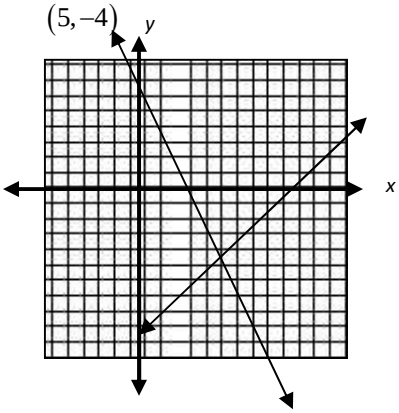
Topic 9: Systems of Equations

A: Solve by graphing:

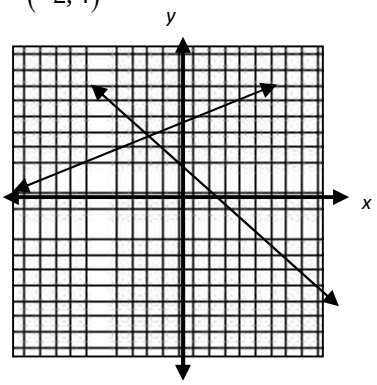
1. $(5,1)$



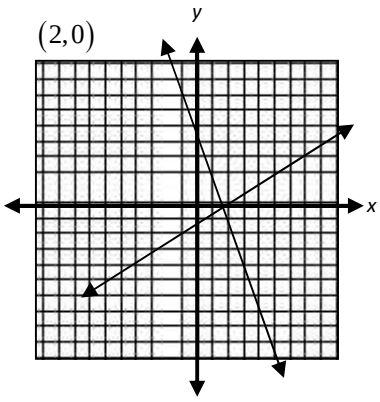
2. $(5,-4)$



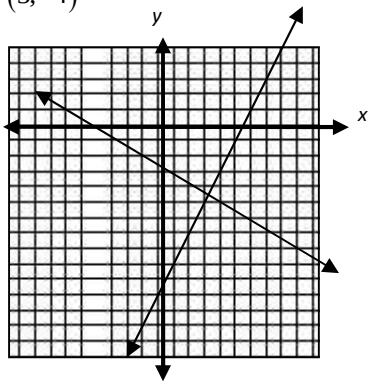
3. $(-2,4)$



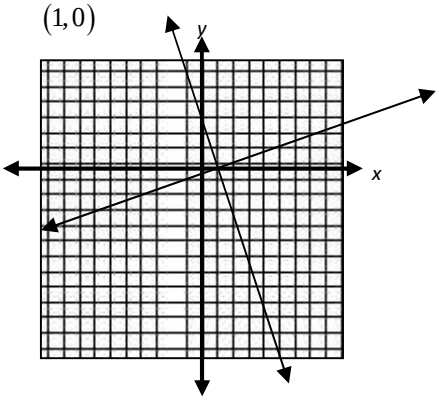
4. $(2,0)$



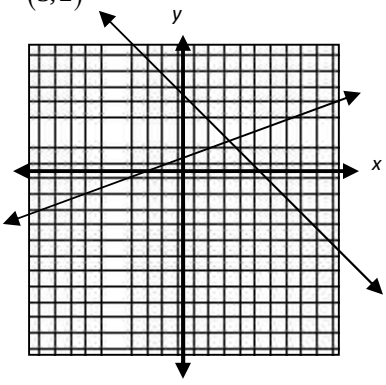
5. $(3,-4)$



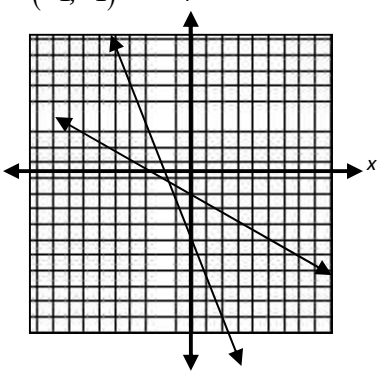
6. $(1,0)$



7. $(3,2)$



8. $(-1,-1)$



B: Solve by addition or substitution:

9. $(0,1)$

10. $(2,3)$

11. $(0,2)$

12. $\left(\frac{9}{2},\frac{3}{2}\right)$

13. $(8,-15)$

14. $(3,1)$

15. $(3,0)$

16. $(3,-4)$

17. $(-5,-9)$

18. $(-2,5)$

Topic 10: Word Problems

A: Integer Problems:

1. 12 & 60
2. 12 & 8
3. 8 & 47
4. -9 & -8
5. 15, 16, & 17
6. 55 & 57
7. 19, 20, & 21

B: Measurement Problems:

8. width = 4; length = 28
9. 30, 32, & 34
10. width = 16 in; length = 40 in
11. 4 feet, 14 feet & 14 feet
12. 30°, 50°, & 100°

C: Age Problems:

13. Anna = 8 years old
    Ramon = 2 years old

14. Tom = 8 years old
    Sue = 4 years old

15. Kim = 14 years old
    Marissa = 24 years old

D: Distance Problems:

16. time = $2\frac{7}{19}$ hours

17. time = 16 hours

18. time = 5 hours

E: Problems Using Two Variables:

19. 36 and 16

20. 50° and 130°

21. pine tree = 2 years old

    Oak tree = 22 years old

22. 48

23. 49

24. 24 dimes

    21 quarters

25. omit