Algebra 2C

Name | Group # | Score

2010-2011

Chapter 1.1-1.5 Answers

Chapter 1 Foundations for Functions - Lesson 1-1 Sets of Numbers

2. $\sqrt{7}, 3\sqrt{2}, 4\frac{3}{5}, 4.\overline{6}, 5.125$; $\sqrt{7}$: $\mathbb{R}$, irrational; $3\sqrt{2}$: $\mathbb{R}$, irrational; $4\frac{3}{5}$: $\mathbb{R}, \mathbb{Q}$; $4.\overline{6}$: $\mathbb{R}, \mathbb{Q}$; 5.125: $\mathbb{R}, \mathbb{Q}$

3. $-\frac{100}{4}, -6.897, \frac{1}{8}, \sqrt{4}, \sqrt{6}$; $-\frac{100}{4}$: $\mathbb{R}, \mathbb{Q}, \mathbb{Z}$; -6.897: $\mathbb{R}, \mathbb{Q}$; $\frac{1}{8}$: $\mathbb{R}, \mathbb{Q}$; $\sqrt{4}$: $\mathbb{R}, \mathbb{Q}, \mathbb{Z}, \mathbb{W}, \mathbb{N}$; $\sqrt{6}$: $\mathbb{R}$, irrational

4. $-\sqrt{3}, -1\frac{1}{3}, 1.\overline{3}, \frac{\pi}{2}, \sqrt{5}$; $-\sqrt{3}$: $\mathbb{R}$, irrational; $-1\frac{1}{3}$: $\mathbb{R}, \mathbb{Q}$; $1.\overline{3}$: $\mathbb{R}, \mathbb{Q}$; $\frac{\pi}{2}$: $\mathbb{R}$, irrational; $\sqrt{5}$: $\mathbb{R}$, irrational

9. $\{x \mid -5 \le x < 3\}$

10. nonnegative integer multiples of 5

11. $\{-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5\}$

36. True

37. False; possible answer: 3 is real but not irrational.

38. False; possible answer: -4 is an integer but not a whole number.

39. True

53. $\mathbb{N}$

54. $\mathbb{Q}$

55. $\mathbb{W}$

56. No; possible answer: square roots of some numbers are not irrational. $\sqrt{9} = 3$ and 3 is

Chapter 1 Foundations for Functions - Lesson 1-2 Properties of Real Numbers

1. 36; $-\frac{1}{36}$

2. 0.05; -20

3. $-2\sqrt{2}$; $\frac{1}{2\sqrt{2}}$

4. $-\frac{2}{5}$; $\frac{5}{2}$

5. $\frac{1}{500}$; -500

6. -0.25; 4

7. Assoc. Prop. of Mult.

8. Comm. Prop. of Add.

9. Comm. Prop. of Mult.

10. $7.65

11. $7.33

12. always true by the Distributive Property

13. sometimes true; possible answer: true when $a = b$; false when $a = 1$ and $b = 2$

14. sometimes true; possible answer: true when $a = 0$; false when $a = 1, b = 2$, and $c = 3$

28. 2(8.88) + 3(14.99) = $62.73

29. 4(11.99) – 2(8.88) = $30.20

32. $\approx$ 2 h

33. $\approx$ 2 loops

53. D

54. J

55. C

60. π

61. $-4\sqrt{2}$

62. $-4\sqrt{2}$, π

Chapter 1 Foundations for Functions - Lesson 1-3 Square Roots

2. 8.7

4. -9.6

6. $-10\sqrt{3}$

8. 6

10. $\frac{\sqrt{2}}{2}$

12. $\frac{5\sqrt{6}}{6}$

14. $13\sqrt{7}$

16. $11\sqrt{5}$

18. 7.7

20. 6.9

22. $9\sqrt{2}$

24. $\frac{5\sqrt{2}}{3}$

26. 6

28. 6

30. $\frac{2\sqrt{3}}{3}$

32. $-3\sqrt{6}$

34. $-5\sqrt{3}$

36. $-13\sqrt{2}$

38. $5\sqrt{5}$

40. $12\sqrt{3}$

62. sometimes true; possible answer: true when both a and b equal 4, but false when a equals 5 and b equals 3

63. Always true; possible answer: when a = 4 and b = 9, $\frac{\sqrt{4(9)}}{\sqrt{4}} = \frac{\sqrt{36}}{\sqrt{4}} = \frac{6}{2} = 3 = \sqrt{9}$.

64. sometimes true; possible answer: true for $a = 2$ and $b = 1$, but false for $a = 2$ and $b = 4$

65. no; for example, $\sqrt{3+3} = \sqrt{6} \neq 3$

66. Possible answer: no; $\sqrt{2}$ is an irrational number but is rounded by the calculator. The square of the rounded number does not equal 2.

68. A

69. H

70. D

Chapter 1 Foundations for Functions - Lesson 1-4 Simplifying Algebraic Expressions

10. $\frac{d}{0.60}$

11. -18

12. -29

13. 115

14. $\frac{1}{45}$

15. $3x-12y+2$

16. $a+3b$

17. $5-3m-2n$

18. $-10x-xy$

21. $5g^2-6g+1$; 28

25.

x	$(x-4)^2$	x^2+16	$x^2-8x+16$
1	9	17	9
2	4	20	4
3	1	25	1
4	0	32	0

$(x-4)^2 = x^2-8x+16$

27. $7a+4b$

34. A; the minus sign was not distributed in the second step.

36. D

37. G

38. C

47. $\mathbb{Q}$

49. irrational

51. $3\sqrt{6}$

53. 14

Chapter 1 Foundations for Functions - Lesson 1-5 Properties of Exponents

2. $4(a-b)(a-b)$

4. $-s\cdot s\cdot s(-2t)(-2t)(-2t)(-2t)(-2t)$

6. $\frac{25}{9}$

8. $\frac{27}{8}$

10. $9a^4b^6$

12. $\frac{5v^4}{u}$

14. $-\frac{14t^6}{s^{11}}$

16. $8b$

22. $(m+2n)(m+2n)(m+2n)$

24. $(-9fg)(-9fg)(-9fg)\cdot h\cdot h\cdot h\cdot h$

26. $\frac{1}{16}$

28. $-\frac{8}{125}$

30. $-\frac{4s^5}{t^{11}}$

32. $\frac{1}{256u^8v^{12}}$

34. 5.44×10^2

35. 1.5×10^9

36. 6.46×10^9

45. $\frac{3x}{2y^3}$

47. $-24a^3b^7$

49. $\frac{9m^2}{25n^2}$

Chapter 1 Foundations for Functions - Ready to Go On?

1. $-3\frac{1}{3},-\frac{4}{5},0.\overline{75},\sqrt{5},2.5$; $-3\frac{1}{3}$: $\mathbb{R}$, $\mathbb{Q}$; $-\frac{4}{5}$: $\mathbb{R}$, $\mathbb{Q}$; $0.\overline{75}$: $\mathbb{R}$, $\mathbb{Q}$; $\sqrt{5}$: $\mathbb{R}$, irrational; 2.5: $\mathbb{R}$, $\mathbb{Q}$

2. $-2,-\frac{\pi}{2},-1.\overline{15},\frac{5}{6},\sqrt{3}$; -2: $\mathbb{R}$, $\mathbb{Q}$, $\mathbb{Z}$; $-\frac{\pi}{2}$: $\mathbb{R}$, irrational; $-1.\overline{15}$: $\mathbb{R}$, $\mathbb{Q}$; $\frac{5}{6}$: $\mathbb{R}$, $\mathbb{Q}$; $\sqrt{3}$: $\mathbb{R}$, irrational

3. $[-4,2)$

4. $\{x \mid x<-2 \text{ or } x>0\}$

5. Distributive Property

6. Additive Identity Property

7. Associative Property of Multiplication

8. \$30; $(12\%)\$250 = (0.10+0.02)(\$250) = 0.10(\$250)+\frac{1}{5}(0.10)(\$250) = \$25+\left(\frac{1}{5}\right)\$25 = \$3$

9. 8.7 ft by 8.7 ft, 11.2 ft by 11.2 ft, and 12.2 ft by 12.2 ft; The 75 ft^2 dance floor is the largest that would fit in an 11 ft by 13 ft room.

10. $-6\sqrt{2}$

11. $19\sqrt{3}$

12. $-4\sqrt{5}$

13. $8\sqrt{3}$

14. 0

15. -1

16. $6x^2-3y$

17. $-2x+7y$

18. $\frac{x^{44}}{y^8}$

19. $\frac{-3s^5}{t^6}$

20. $\frac{4}{a^6b^{18}}$

21. $\frac{m^{12}}{25n^6}$

22. 750 moles