

Algebra 1 Workbook – Chapter 8

Lesson 8.1

Practice Level B

1. 5^{12} 2. $(-4)^{10}$ 3. $(-10)^7$ 4. 8^7 5. 2^{10}
6. 3^{10} 7. 9^{21} 8. 15^8 9. $(-4)^{45}$ 10. 13^4 p 19^4
11. 48^6 p 27^6 12. 135^5 p 8^5 13. x^7 14. y^8
15. a^{18} 16. z^{25} 17. b^{14} 18. $(b + 1)^6$
19. $81x^4$ 20. $-81x^4$ 21. $32a^5b^5$ 22. $64x^{18}y^6$
23. $81m^{31}$ 24. $36p^{12}$ 25. 6 26. 3 27. 6
28. 10^6 newspapers 29. a. 10^4 tons b. 10^{12} tons c. 10^{18} tons 30. a. x^4 square units
b. 625 square units c. 10,000 square units

Lesson 8.2

Practice Level B

1. 6^6 2. 14^1 3. $(-5)^5$ 4. 12^4 5. 8^7
6. $\frac{3^5}{4^5}$ 7. $\frac{(-1)^6}{5^6}$ 8. 3^7 9. 4^8 10. y^6 11. z^9
12. $\frac{a^8}{b^8}$ 13. $-\frac{216}{z^3}$ 14. $\frac{a^{12}}{16b^{20}}$ 15. $\frac{243x^{20}}{y^{30}}$
16. $\frac{m^{12}}{125n^{27}}$ 17. $\frac{81x^{28}}{16y^{48}}$ 18. $\frac{32m^{25}}{243n^{45}}$ 19. 10^4
20. a. 10^4 b. 10^3 21. $\frac{3087\pi}{2}$ in.³

Lesson 8.4

Practice Level B

1. 1.04×10^1 2. 6.751×10^3 3. 5.4×10^{-1}
4. 1.03×10^{-4} 5. 4.1562×10^5
6. 8.104×10^{-2} 7. 3.412×10^6
8. 5.255×10^2 9. 1.0425×10^2
10. 4.56×10^{-5} 11. 2.07×10^{-7}
12. 2.3551×10^4 13. 158,000 14. 321,000,000
15. 4,502,100,000 16. 810,450 17. 17,220,000
18. 101.2 19. 0.000812 20. 0.0000004014
21. 0.0081025 22. 0.00000000312056
23. 0.01211 24. 0.0000700135
25. 9.287×10^3 ; 1.3759×10^4 ; 14,205;
 3.0214×10^4 26. 1.04×10^{-3} ; 2.5×10^{-3} ; 0.0985; 0.16
27. 8.79×10^2 ; 1.0085×10^3 ; 1023; 1146
28. 1.2×10^{-5} ; 0.001023; 1.045×10^{-3} ; 0.01036 29. 3×10^7 30. 5×10^{-4}
31. 3.2×10^{-24} 32. 5.4×10^5 pixels
33. about 13.57 people/km² 34. a. Titania, Oberon, Ariel, Umbriel, Miranda b. about 53

Lesson 8.3

Practice Level B

1. $\frac{1}{243}$ 2. $\frac{1}{1000}$ 3. $\frac{1}{64}$ 4. 1 5. 1 6. 1 7. $\frac{64}{25}$
8. $\frac{343}{64}$ 9. undefined 10. $\frac{1}{100,000}$ 11. $\frac{1}{64}$
12. 625 13. $\frac{1}{x^7}$ 14. $\frac{6}{y^4}$ 15. $\frac{1}{32b^5}$ 16. $\frac{1}{81m^4}$
17. $\frac{a^2}{b^4}$ 18. $\frac{3}{x^2y^5}$ 19. $\frac{x^{12}}{64y^6}$ 20. 1 21. $\frac{d^5}{c^3}$
22. x^2y^4 23. $\frac{1}{4x^6y^5}$ 24. $\frac{x^3y^7}{3}$
25. a. $\frac{1}{20}$ in. b. $\frac{2}{25}$ in.
26. $\frac{4\pi}{375}$ cm³
27. a. 10^{-6} m b. 10^{-15} m c. 10^{-2} m

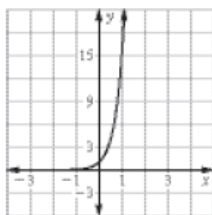
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Lesson 8.5

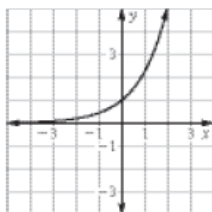
Practice Level C

1. $y = -4^x$ 2. $y = 5 \cdot 2^x$

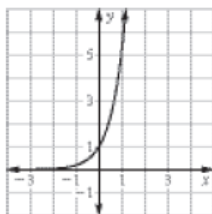
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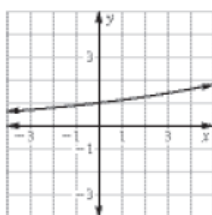
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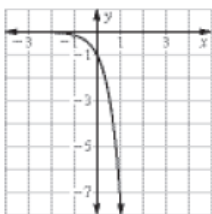
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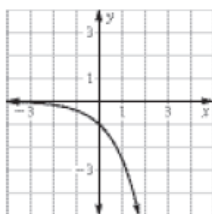
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7. domain: all real numbers; range: all negative real numbers

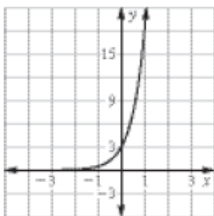


8. domain: all real numbers; range: all negative real numbers

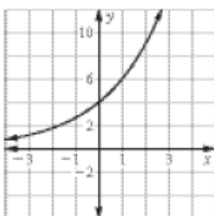


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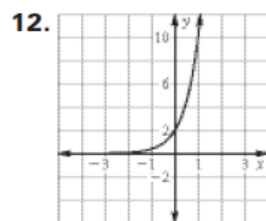
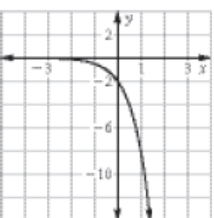
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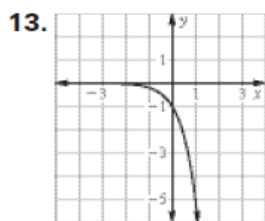
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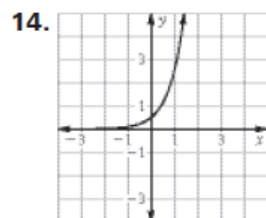
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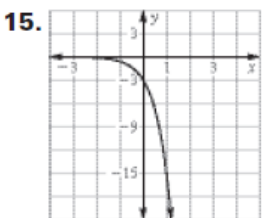
vertical stretch



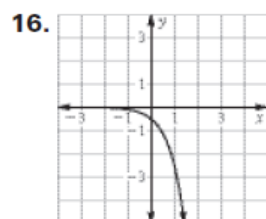
reflection in x -axis



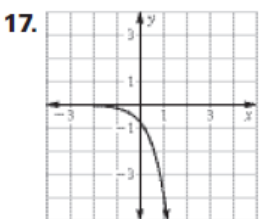
vertical shrink



vertical stretch and
reflection in x -axis



vertical shrink and
reflection in x -axis



vertical shrink and
reflection in x -axis

18. Subtract the amount deposited from the balance. a. \$10.31 b. \$54.48 c. \$270.16

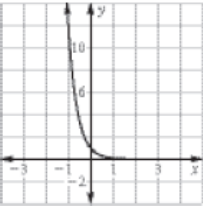
19. a. $y = 65,000(1.025)^t$ b. about 71,748 people 20. a. 100% b. $y = 10(2)^t$ c. 160

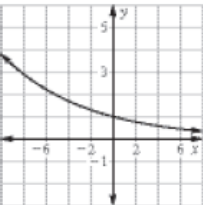
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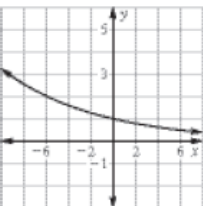
Lesson 8.6

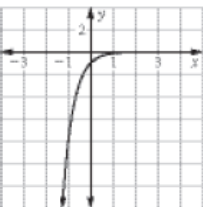
Practice Level B

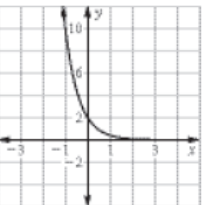
1. yes; $y = \left(\frac{1}{5}\right)^x$ 2. no

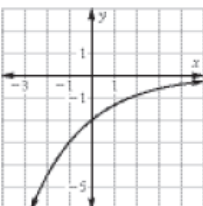
3.  domain: all real numbers; range: all positive real numbers

4.  domain: all real numbers; range: all positive real numbers

5.  domain: all real numbers; range: all positive real numbers

6.  domain: all real numbers; range: all negative real numbers

7.  domain: all real numbers; range: all positive real numbers

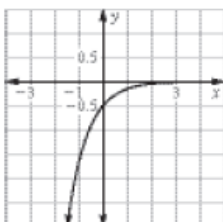
8.  domain: all real numbers; range: all negative real numbers

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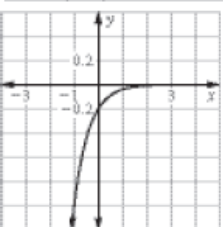
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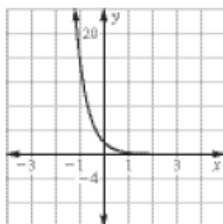
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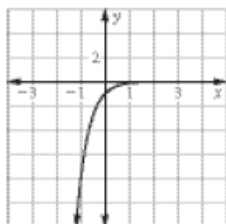
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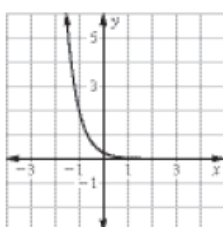
12. vertical stretch



13. reflection in x -axis



14. vertical shrink



15. exponential decay; $y = 3(0.75)^x$

16. exponential decay; $y = 2(0.7)^x$

17. exponential growth; $y = 4(2)^x$

18. a. \$2400 b. \$1536 c. \$983.04

19. a. $y = 7(0.979)^t$ b. about 5.4%

20. a. $y = 18,000(0.945)^t$ b. about 13,565 people