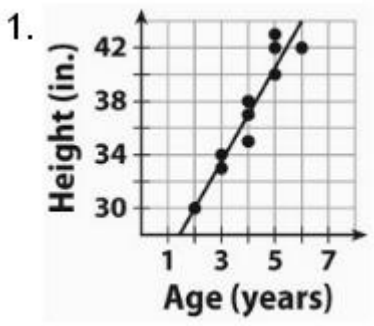
LESSON 10-1

Practice and Problem Solving: A/B

1. 

1.

2. Predicted: 30,33.5,33.5,37,37,37,40.5,40.5,40.5,44

Residuals: 0,-.5,.5,0,-2,1,-.5,1.5,2.5,-2

3. Graph

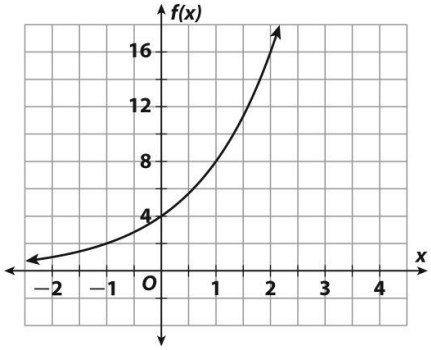
4. Several outliers 2 units away, which makes the student's line potentially unreliable.

5. The height of a 20-year-old man would be 7 ft. 9 in……..which is unlikely as a reliable predicted result.

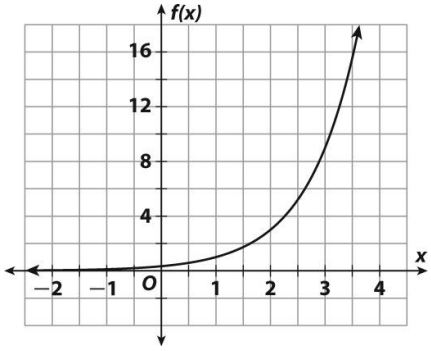
LESSON 10-2

Practice and Problem Solving: A/B

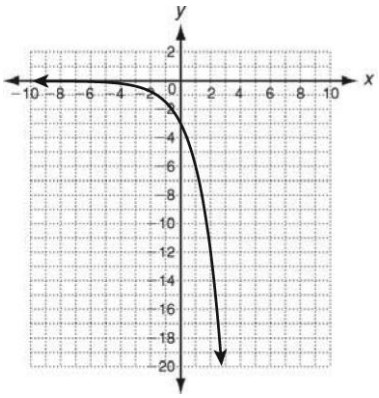
1. 1, 2, 4, 8, 16; $a = 4$, $b = 2$, y-intercept = 4; end behavior = 0, ∞



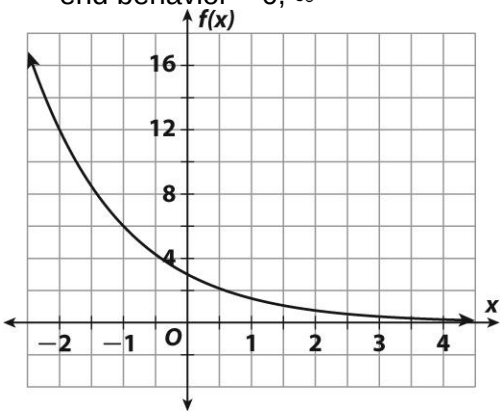
2. $\frac{1}{27}, \frac{1}{9}, \frac{1}{3}, 1, 3$; $a = \frac{1}{3}$, $b = 3$, y-intercept = $\frac{1}{3}$; end behavior = 0, ∞



3. $-\frac{3}{4}, -\frac{3}{2}, -3, -6, -12$; $a = -3$, $b = 2$, y-intercept = -3; end behavior = 0, $-\infty$



4. $12, 6, 3, \frac{3}{2}, \frac{3}{4}$; $a = 3$, $b = \frac{1}{2}$, y-intercept = 3;
end behavior = 0, ∞



LESSON 10-3

Practice and Problem Solving: A/B

1. $y = 650{,}000(1.04)^t$; sales ≈ \$790,824.39

   D = set of real numbers $t \geq 0$

   R = set of real numbers $y \geq 650{,}000$

2. $y = 800(1.02)^x$;

   population ≈ 901 students

   D = set of real numbers $t \geq 0$

   R = set of real numbers $y \geq 800$

3. $y = 2500(0.97)^t$;

   population $\approx$ 2147 people

   D = set of real numbers $t \geq 0$

   R = set of real numbers $0 \leq y \leq 2500$

4. $y = 25{,}000(0.85)^t$; value $\approx$ \$6,812.26

   D = set of real numbers $t \geq 0$

   R = set of real numbers $0 \leq y \leq 25{,}000$

5. $y = 20{,}000(1.05)^t$

LESSON 10-4

Practice and Problem Solving: A/B

1. is first differences: 9, 15, 21, 27, 33
   second differences: 6, 6, 6, 6
2. is not first differences: 16, 20, 30, 38, 46
   second differences: 4, 10, 8, 8
   The second differences are not the same.
3. $a = 4$, $b = 0$, $c = -7$; $g(x) = 4x^2 - 7$
4. $a = 3$, $b = 1$, $c = 0$; $g(x) = 3x^2 + x$
5. $a = 1.9$, $b = 0.4$, $c = 4.3$;
   $g(x) = 1.9x^2 + 0.4x + 4.3$
6. $g(x) = 0.2x^2 + 0.4x + 0.9$

LESSON 10-5

Practice and Problem Solving: A/B

1. $f(x) = -3, -1, 1, 3, 5, 7$;
   1st differences = –, 2, 2, 2, 2, 2;
   2nd differences = –, –, 0, 0, 0, 0;
   ratios = –, 0.33, –1, 3, 1.67, 1.40
2. increases without bound
3. linear
4. $f(x) = -2, -3, -2, 1, 6, 13$;
   1st differences = –, –1, 1, 3, 5, 7;
   2nd differences = –, –, 2, 2, 2, 2;
   ratios = –, 1.50, 0.67, –0.50, 6, 2.17
5. increases without bound
6. quadratic
7. $f(x) = \frac{1}{9}, \frac{1}{3}, 1, 3, 9, 27$;
   1st differences = –, 0.22, 0.67, 2, 6, 18;
   2nd differences = –, –, 0.45, 1.33, 4, 12;
   ratios = –, 3, 3, 3, 3, 3
8. approaches zero
9. exponential
10. Exponential. Common ratio is 0.5
11. \$12