

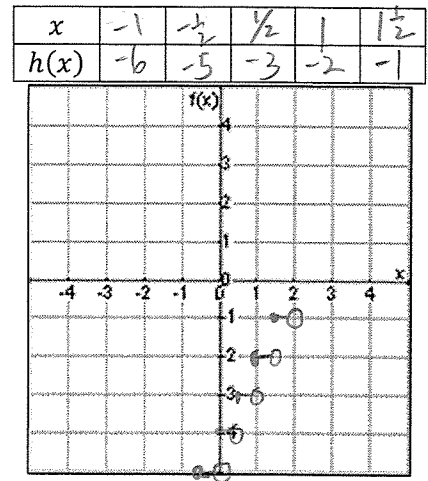
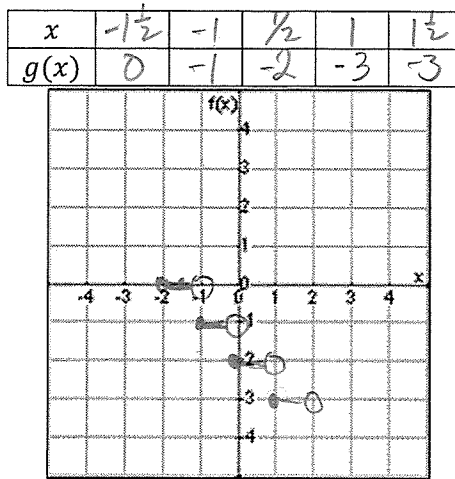
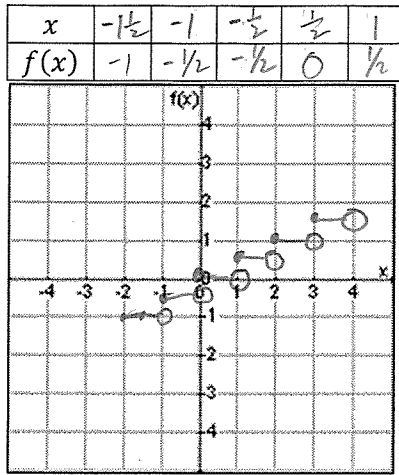
Lesson 8.2

Fill out an x/y chart and graph each of the following functions.

1. $f(x) = \frac{1}{2}[x]$

2. $g(x) = -[x + 2]$

3. $h(x) = [2x] - 4$



KEY
← horizontal shrink

← horizontal stretch

← reflect across y-axis

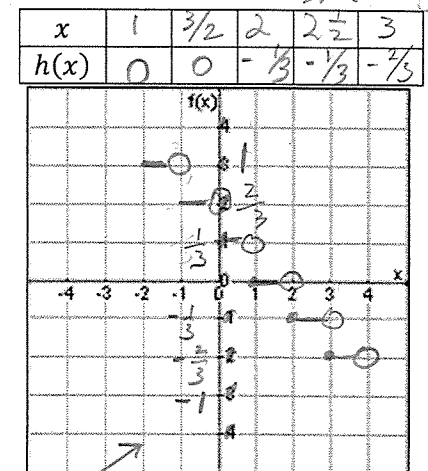
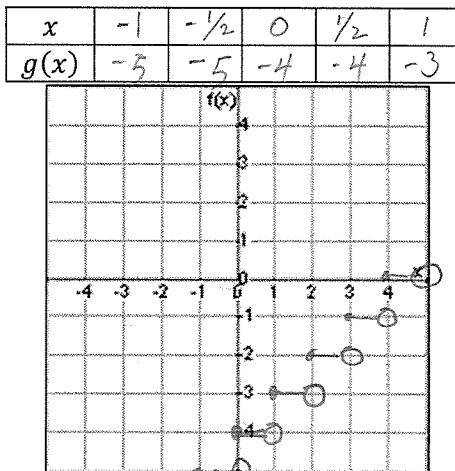
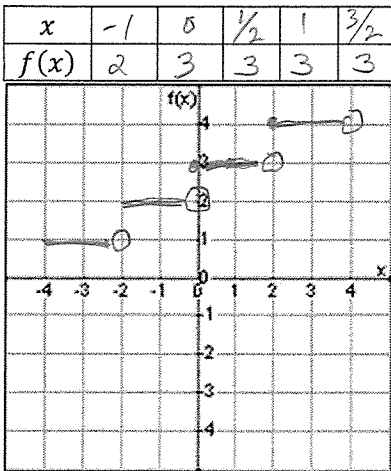
← reflect across x-axis
← vertical shrink

4. $f(x) = [\frac{1}{2}x] + 3$

5. $g(x) = [-x] - 4$

6. $h(x) = -\frac{1}{3}[x - 1]$

← shift right



* I changed y values to -1/3, -2/3, -3/3, etc.

Given that $f(x) = [x]$ is the parent function, describe the transformation of $g(x)$.

7. $g(x) = [\frac{1}{2}x + 2]$

8. $g(x) = -[x] + 4$

9. $g(x) = [-x - 6]$

- ① horizontal stretch by factor of 2
② shift left 2x

- ① shift up 4 units.
② reflect across x-axis.

- ① reflect across y-axis
② shift right 6x.

Given that $f(x) = [x]$ is the parent function, describe the transformation of $g(x)$.

10. $g(x) = 2[x] - 7$

11. $g(x) = -[4x]$

12. $g(x) = [-x + 1] + 5$

Solve the following equations.

13. $2[x] = 10$

14. $[x + 4] + 5 = 4$

15. $\left[\frac{1}{2}x - 1\right] + 4 = 0$

16. $[-4x] - 9 = -5$

17. $-[x - 5] = 15$

18. $\frac{1}{3}\left[x + \frac{1}{2}\right] = 8$

Create a function to model the following situations.

19. You want to bring cupcakes to school for your birthday. Each case comes with 12 cupcakes and costs \$6.95. Create a function that models the number of cases you should buy in terms of the number of students in your class.

$C = \left[\frac{x+11}{12}\right]$ Big C = # cases, x = # students

20. Renting jet skis in the Bahamas costs \$40 per hour plus a \$15 gas fee. Create a function that models the cost in terms of the number of hours the jet skis were rented.

21. Laser tag at Fred's Family Fun costs \$6 for every segment of 15 minutes of play, plus a \$5 battery fee. Create a function that models the cost in terms of the number of minutes playing tag.

$m = \# \text{ minutes}$ $C = 6\left[\frac{m+14}{15}\right] + 5$

22. A textbook company charges \$725 for each case of books that it sells. A case can contain any number of books up to 30 books. They charge a flat shipping fee of \$100. Create a function that models the cost in terms of the number of books needed.

$C = 725\left[\frac{b+29}{30}\right] + 100$

23. Long distance phone calls cost \$0.99 for the first minute, and \$0.39 for every minute after that. Create a function that models the cost in terms of the duration of the phone call in minutes.

$S = \# \text{ seconds}$ $C = 0.99 + 0.39\left[\frac{S+59}{60}\right]$

24. You're ordering pizza for your birthday party. You estimate that each pizza will serve 4 people. Create a function that models the number of pizzas you need to order in terms of the number of people attending.

$P = \# \text{ pizzas}$ $P = \left[\frac{p+3}{4}\right]$