

Name: _____ Date: _____ Period: _____

Algebra 1
Chapter 2 Study guide

Solve each equation. Answers should be integers or simplified (improper) fractions.

1. $\frac{2x-1}{7} = \frac{x+10}{3}$

2. $-5(2n+3) = 14n - 3(4-3n)$

3. $14n - 3 = -3 - 14n$

4. $4\frac{3}{4} + 4b = \frac{5}{8}$

5. $-2(-4a-1) = -5a + \frac{2}{3}(a-10)$

6. $3m - 2(m+4) = \frac{2}{3}(3m-7) - m$

7. Here are a couple images from Dorney Park's website that I checked out at the start of the summer. There are 4 people in my family. How many times would my family of 4 have needed to go to the park to make the season pass the better deal? Easily overlooked is the cost of parking. If you buy a season pass, parking is free. Daily users must pay for parking every time. **Set up an equation and solve.**



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The advertisement features a smiling woman in a blue swimsuit floating in a pool, with a golden roller coaster car in the background. A yellow season pass card is shown with the text 'Dorney Park 2013 SEASON PASS' and an image of a roller coaster.

Daily Tickets

Regular All Day Admission Tickets

Valid for guests age 3-61 and 48" or taller in shoes

Online: \$39.99/ Gate: \$49.99/ You Save \$10!

Buy 4 or more Online for just \$37.99 each! You Save \$12!

Parking

Daily Parking: \$15/ Daily Preferred Parking: \$25

Solve each equation for the given variable

8. $Nx - Mx = P$; for x

9. $3x - 2 = x$; for x

10. $23x - 5y = 46$; for y

a) Using your equation found above, what is the value of y when $x = -5$?

b) Using your equation found above, what is the value of y when $x = 10$?

Rates and Conversions *Round to the nearest tenth when necessary.*

11. 4.25 lbs = _____ oz

12. 2 miles 100 yards = _____ ft.

13. 15 mi/hr = _____ ft/sec

14. Some celebrities make \$1,000,000 for a 23-minute weekly television show. How many dollars per second are they making?

15. A 10 inch Barbie doll casts a 2 foot shadow. A nearby tree casts a 45 foot shadow. How tall is the tree?

16. Upon 'graduation' from 8th grade, you rich grandparents gave you \$10,000 that you're supposed to save for graduation from high school. Investing the money in a Bank of America savings account qualifies you for 1.2% interest. After 4 years of high school, how much money will you have when you withdraw all your money plus the interest earned?

17. What percent of 112 is 50? *Round to the nearest integer.*

18. 35% of what number is 59? *Round to the nearest integer.*

19. Mr. Lloyd and Mr. Koch agreed to compete to see who could improve at the number of pull-ups they could do in a minute after practicing for a month. Mr. Lloyd went from 18 in a minute to 24. Mr. Koch started at 15 and went to 21. Use percent of change for both of the teachers to determine who won the improvement contest.
20. Richard Rawlins, infamous car-buyer on the Discovery channel's Fast-n-Loud wanted to buy a 1977 Pontiac Firebird when he was young. His daddy told him they didn't have the money. About a year later Richard bought that 1977 Firebird and a year's worth of insurance with money he made cutting lawns. In 1977, the cost of the Firebird was close to \$5000 and insurance was another \$400 for the year. Richard was paid \$5 per lawn. So how many lawns did he cut? Made an educated guess long to you think it took him to cut that many lawns?
21. This interactive website features the applet below that allows you to relate the expense of gasoline, the amount of a day's wages spent for a gallon of gas, and the percent of annual income spend on gasoline for 60 different countries.
- If you drop-down and select liters instead of gallons under the countries name, which of the columns (there may be more than one) would change their value and how would they change? Explain.
 - Are the three columns accurate for all citizens of the United States for all three columns, or are they averages only? Explain.
 - The applet is drawing from known facts of daily per capita income, daily gas consumption, and average price of a gallon of gas. Write out how the applet generated the number for the second column. Do the same for the third column's value.

Pain at the Pump: Gasoline Prices by Country

Think your gas is expensive? This ranking sorts 60 countries by price, earnings needed to buy a gallon and annual income spent on fuel.



United States

USD per gallon in Q2 2013

Daily per capita income: **\$140.41**
Daily gas consumption: **1.22 gallons**

BY TOM RANDALL | JUNE 20, 2013

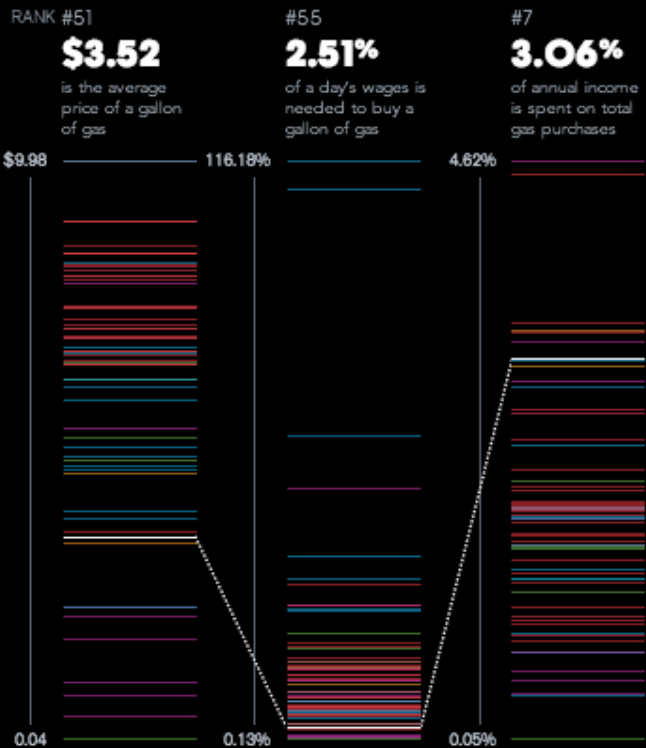
The cost of gasoline ranks with bad weather as one of the most universal complaints. Think your bill is high? Imagine shelling out \$9.98 a gallon, the price in Turkey. Indians must put in more than a full day's work, on average, to afford a single gallon of gas.

With summer travel upon them, Americans have little to complain about. The U.S. pays more than any other nation to keep fossil fuels cheap, and its gas costs \$2.48 less per gallon than average. Only five countries have less pain at the pump; all but one are members of OPEC.

Of course, not all gas tanks are created equal. With all that cheap gas, Americans burn through 1.2 gallons per person each day — 31 percent more than anyone else. Even at low prices, that takes a toll on family budgets.



Highlight region:



DATA: Bloomberg / Associates for International Research Inc. (AIRINC) / Europe's Energy Portal

READ MORE: [Energy & Sustainability](#) news.

Chapter 1 Review: Circle the correct answer.

2. Which algebraic expression represents 20 less than the product of 5 and a number?

A) $20-5n$

B) $5n-20$

C) $20(5n)$

D) $5(n-20)$

3. Which property is illustrated by the expression: $2(3x) = (2 \cdot 3)x$

A) Commutative Property

B) Associative Property

C) Identity Property

D) Distributive Property

4. Which of the following choices is the correct simplified form of $-\sqrt{81}$?

A) -9

B) 9

C) -27

D) 27

5. What is the value of $3x^2 + 2(x - y)$ when $x=-1$ and $y=-2$?

A) -3

B) 5

C) 11

D) -5

6. Find the next two terms in the following sequence. **Explain the pattern.**

-4, 8, -16, 32, _____, _____

7. Use order of operations to simplify. SHOW ALL WORK!

a. $4 \cdot 2 \div (-12 - (-11))^2$

b. $9 - [-8 + (12 \div 2)]^2$

