Common Core MATHEMATICS 7

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Lesson #1 Example

1. Which are complex fractions?

   A) $\frac{1}{2}$ B) $\frac{\frac{2}{9}}{7}$ C) $\frac{7}{3}$ D) $\frac{\frac{3}{4}}{\frac{1}{8}}$

2. If the temperature at the North Pole is −12°, how many degrees would the temperature have to increase for it to be 0°?

3. Victoria thinks these expressions are equivalent. Is she correct? Explain.

   $6(4t + 4) - 9t$ $15t + 4$

4. The ratio of mallard ducks to swans living at the pond was 12 to 4. If there were 45 mallard ducks, how many swans were there?
   (Hint: Set up a ratio: $\frac{45}{?} = \frac{12}{4}$; cross-multiply and divide the product by 12.)

5. Find the radius of a circle that has an area of 530.66 cm². Use 3.14 for pi.

6. Which two expressions mean the same as "increase by 5.4%?"

   A) $1a + 0.054a = 1.054a$ B) $1.54a$ C) multiply by 1.054

7. When two factors have opposite signs, the product is (negative / positive).
   Which equations will have a negative product?

   A) -4×5 B) 4×5 C) 4×-5 D) -4×-5

8. Bradley bought a chair at a yard sale for $8.00. This is $25.00 less than it would have been if he had purchased it new. Write and solve an equation to find out how much the chair would have cost if he had purchased it new.

9. Find the values of a, b, and c.

10. Barney and Fred went to see a movie. Each ticket cost $6.25. They each bought a $2.75 drink, and they shared a box of popcorn that cost $5.00. If the friends started with $40.00, how much did they have left after the movie?

11. A coin is tossed. What is P(tails)? (In other words, what is the probability that the coin will land tails up?) Express the probability as a fraction.

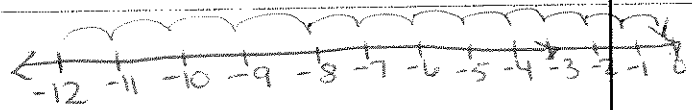
12. Cameron and 4 others bought identical bat bags. The cost for all five bags was $115 plus 8% sales tax. If each person contributed $23, would that be enough to cover the bill? Estimate and explain.

Lesson #1 Example

1.
complex fractions:
fraction divided by another fraction (or whole)

B. and D.

2.



12°

3.
$6(4t+4)-9t$
$24t+24-9t$
$15t+24 \neq 15t+4$

Victoria is not correct because after you distribute and combine like terms, you don't get the same expression.

4.
$\frac{45}{?} \times \frac{12}{4}$ 15 = ?
$45 \cdot 4 = 12 \cdot ?$
$\frac{180}{12} = \frac{12 \cdot ?}{12}$

There were 15 swans.

5.
$A = \pi r^2$ $\frac{530.66}{3.14} = \frac{3.14r^2}{3.14}$
$\sqrt{169} = \sqrt{r^2}$
$13 = r$

13cm

6.
increase by 5.4%
5.4% = 0.054

A. and C.

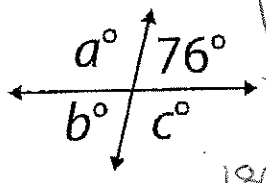
7. When two factors have opposite signs, the product is negative.

A. and C.

8. C = purchase price of a new chair
$8 = C - 25$
$+25 \quad +25$
$33 = C$

$33

9.



b = 76°
a & c = 104° each
180 − 76 = 104

10. $2(6.25) + 2(2.75) + 5$
$12.50 + 5.50 + 5$
$= 23$
$40 - 23$

They had $17 left over.

11.
coin flip: H or T

$P(\text{tails}) = \frac{1}{2}$

12. $115 + (0.08 \times 115) = 124.2$
$5 \times 23 = 115$

That would not be enough because it wouldn't cover the sales tax.

Lesson #2

1. Kim bought 5 ice cream cones for $8.50. Write and solve an equation to find how much each cone cost.

2. William has a bag containing a blue block, a green block, and a yellow block. If he selects three blocks at random and does not replace them, what is the probability that he will select green first, then yellow, and then blue? Create an organized list to show the sample space; then give the P(GYB).

3. Jennifer invests $2,302 in a money market account. The account pays 2.1% simple interest annually. If she doesn't add or subtract any money, is it reasonable to expect that Jennifer will earn about $200 in simple interest in 5 years? Explain.

4. Find the volume of the shape.

5. A fruit salad recipe calls for 2 cups of strawberries for every cup of grapes, and will serve 4 people. If Anthony wants to serve 6 people, how much of each ingredient will he need?

6. Which phrase means the same as "a number and its opposite?"

   opposite of opposite additive inverses absolute value

7. Find the values of a and b.

8. Mara's new shoes were 15% off the original price. Write an expression to show the sale price of the new shoes. Use the variable s for the original price of the shoes.

9. Rachael made pudding cups for a party. Each serving is $\frac{2}{3}$ cup. If she wants to take 12 servings to the party, how many cups of pudding should she make?

10. Find the circumference of a circle that has a radius of 45.5 inches. Use π for pi.

11. Choose the division problem that you would use to simplify the complex fraction in the answer box.

    A) $\frac{1}{3} \times 6$ B) $\frac{1}{3} \div 6$ C) $3 \div 6$

12. Simplify this expression. $3w + 7 - 5r + 2 - r$

Lesson #2

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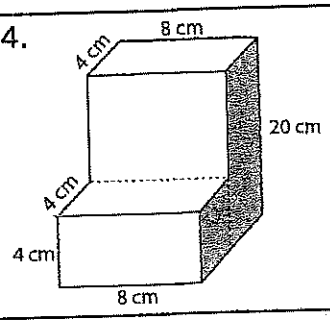

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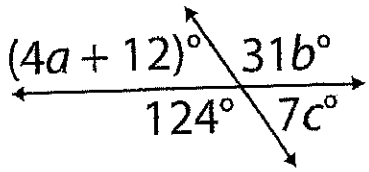

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$$\frac{\frac{1}{3}}{6}$$

12.

Lesson #3

1. What is the sample space of the spinner shown in the answer box? What is $P(4)$?

2. A party-punch recipe calls for two gallons of lemonade, one liter of ginger ale and a $\frac{1}{2}$ gallon of sherbet. Nicole's punch bowl isn't large enough, so she has to cut the recipe down. If she uses only $\frac{3}{4}$ liter of ginger ale, how much of each of the other ingredients will she need?

3. When is the product of two integers positive?

4. Use the properties of addition to simplify $3d + 3 - 8f + 5d - f$.

5. Find the circumference of a circle that has a diameter of 175 inches. Use $\frac{22}{7}$ for pi.

6. Josh scored 16 points in his first basketball game. He scored 12 points in the second game, and 8 points in the third. What is Josh's average score for the three games?

7. Remember, the interior angles of a triangle always add up to 180°. Find the values of a and b.

8. Which expression means the same as "decrease by 4.3%?"

   A) $x - 0.043x = 0.957x$ B) $x - 0.43x = 0.57x$

9. The dimensions of a rectangular prism are 8 cm, 11 cm, and 14 cm. Find the volume and the surface area.

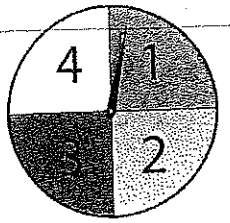
10. A store has 300 picnic baskets in its inventory. Twenty percent of the baskets are wicker, and $\frac{2}{5}$ are cloth. Is it reasonable to assume that about 100 baskets are neither wicker nor cloth? Explain.

11. The baseball sweatshirt comes with or without a hood. It also comes in three colors: blue, silver, and white. How many choices are there? Draw a tree diagram to show the sample space of sweatshirt styles and color choices.

12. Five girls decided to share a box of cookies equally. Each girl got 4 cookies. Write and solve an equation to find out how many cookies the box originally had.

Lesson #3

1.



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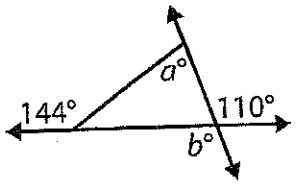

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Lesson #4

1. Lester is making pancakes. The recipe calls for 6 cups of pancake mix and 2 cups of milk. If Lester uses 4 cups of milk, how many cups of pancake mix will he need to use?

2. Ally and Katie are playing a trivia game as a team. Katie missed 8 questions, giving the team a score of −8. How many questions does Ally need to answer correctly to get the score to 0?

3. Simplify this expression. $14h - 8 - 3h - 5$

4. Find the values of a, b, and c.

5. The chart shows the average daily temperature for 4 days. After Day 1, which day was the warmest?

Day 1	Day 2	Day 3	Day 4
92°	78% of Day 1	$\frac{4}{5}$ of Day 1	0.62 of Day 1

6. Find the radius of a circle that has an area of 6.76π cm^2. Use π for pi.

7. Sarah has $15.00 to spend on ice cream for a party. Ice cream costs $4.32 per gallon including tax. How many gallons of ice cream can Sarah buy? How much money is left over?

8. Carly puts a block with each letter of her name in a paper bag. In the answer box, list the sample space. If she chooses a block without looking, what is $P(A)$?

9. $\frac{\frac{1}{4}}{3}$ is a complex fraction. Choose the equivalent simplified fraction.

   A) $\frac{1}{2}$ B) $\frac{1}{12}$ C) $\frac{3}{\frac{1}{4}}$

10. Solve for t. $15 = 5t - 25$

11. A particular substance is worth $0.76 per cubic inch. Assume the figure is composed of this substance. What would its value be?

12. When is the product of two integers negative?

Lesson #4

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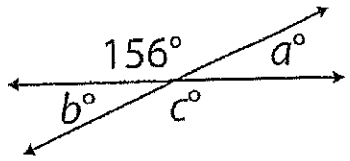
3.	4. 
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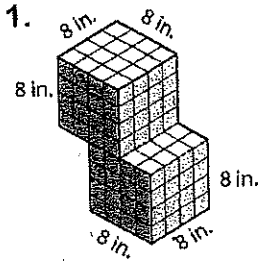
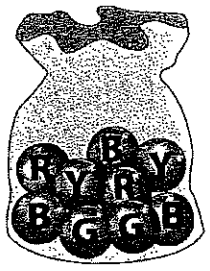
11. 	12.

Lesson #5



1. A bag contains 9 marbles: 3 blue, 2 green, 2 yellow, and 2 red. The first marble pulled at random was yellow, and it was not replaced. What is the probability that the second marble pulled at random will be red?

2. Kayla charges $8.50 per hour when she babysits. Write and solve an equation to find out how many hours she needs to work to earn $255.

3. On a baseball diamond, there are 90 feet between each of the 4 bases. When Brian runs, he travels about 1 yard with each step. About how many steps does Brian take when he runs from first to second base?

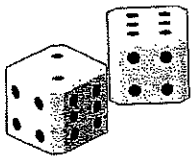
4. Which term names the opposite of a number?

   absolute value negative additive inverse

5. Find the values of a, b, and c.

6. A regular bottle of sunscreen contains 12 oz of lotion. The family-size bottle contains 20% more. Joe buys 4 family-size bottles of sunscreen and assumes this will be at least 50 ounces of sunscreen. Is Joe's estimate correct?

7. Mikayla made 6 water balloons for every 3 guests at the party. How many water balloons would she need if there were 12 guests?

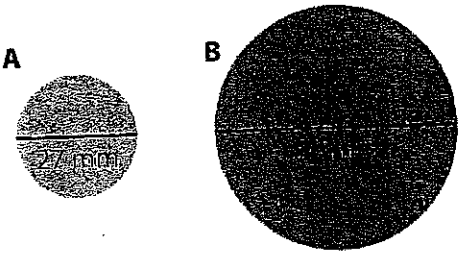


8. Use the properties of addition to simplify $9v - 3s - 5v + 7s$.

9. What is $P(5)$ — the probability of rolling a 5 — using one regular number cube?

10. Fill in the table to remind you what happens when you multiply integers.

11. Determine the difference in area between circle A and circle B.
    Use 3.14 for pi and round to the nearest tenth.



12. Write an expression for the total cost of an item (x) with a 25% discount.

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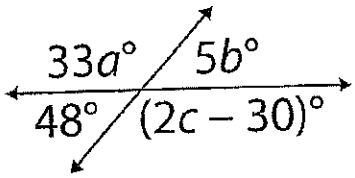

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×	+	−
+		
−		

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Lesson #6

1. Simplify this complex fraction. $\frac{\frac{4}{7}}{12}$

2. Expand this expression by using the distributive property. $6(3k-5)$

3. Which situation matches the equation $-36+36=0$?
   A) Tom had \$0 in his checking account this morning but made a deposit of \$36 this afternoon.
   B) Fran's lunch cost \$14; she gave the clerk \$50 and received \$36 in change.
   C) Jess owed \$36 and paid \$36 to settle her cell phone bill for the month of May.

4. Patrick bought a book for \$15.37, and the tax was 7.25%. How much did Patrick pay including tax? Round to the nearest cent.

5. Miranda works at the pool concession stand. On Friday, she used 4 bags of hot dog buns. On Saturday she used $\frac{1}{2}$ as many bags of buns. How many bags of hot dog buns did Miranda use on Saturday?

6. Three friends drove 133 miles from Cleveland to Pittsburgh to watch the Pirates play baseball. Odin drove 31% of the total distance, Frank drove $\frac{3}{10}$ of the total distance. Kent drove 0.39 of the distance. Which friend drove the farthest?

7. Study the dimensions of the shape. Find its area. Use 3.14 for pi.

8. Sam purchased 5 books online. The books each cost the same amount. He was charged \$11.95 for shipping. The total cost of the purchase was \$71.95. Write and solve an equation to find the cost of each book.

9. Remember, the interior angles of a triangle always add up to 180°. Find the values of a, b, and c.

10. List the sample space for odd numbers between 31 and 40 at random.

11. Danny started with a zero balance on his library account. A book he borrowed was 4 days overdue and he was charged \$0.35 per day. Write and solve an equation that shows the status of Danny's account. What does the answer mean?

12. Admission to the water park was \$36.40 per person. If swim team members were eligible for a 10% discount, what percent of the original price would swim team members pay?

Lesson #6

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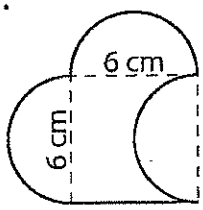
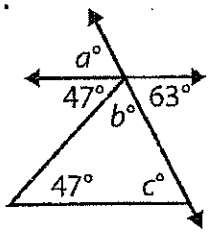
3.	4.
5.	6.
7. 	8.
9. 	10.
11.	12.