

Fifth Grade Color Math Test 8

Objectives

1. Students will take Test 8

Materials

Test pages (4 pages, Resource Pack)
Calculator

Test Directions

Students should be able to read and complete the test independently, but offering any assistance needed to clarify directions. Students will need the scratch paper for at least the story problems on page 3 and any other part of the test where there is not enough space for students to solve the problems.

Students may use a calculator after completing page 1.

Page 1 Problem solving (36 points)

1. Problems Solving: Each line is a different kind of problem, except problems 13 and 14. Both are different from each other on that line.
For problems 19-22 show the first answer and the simplified answer under the second line. (1 point for each answer)
2. Unit conversions: Use the chart to convert volume units.

Page 2 Various Concepts (24 points)

1. Find the missing angles.
2. Probability
3. Area and perimeter of central angles (1 point each for portion of the circle, area, and perimeter)
4. Place value
5. Exponents
6. Prime factors (1 point for finding all the factors, *not* 1 point per factor)

Page 3 Word Problems (10 points)

1. Find the answers to the word problems. Use a blank piece of paper to write and solve the problems when needed.

Page 4 Various concepts (27 points) The answer key is in the resource pack after page 4.

1. Solve for x in the inequalities and graph the ray. (Count 1 point for solving and 1 point for graphing)
2. Match the solids to flattened diagrams
3. Place the fractions on the Venn Diagram
4. Find the surface area and volume of the prisms described.

Scoring the test

Each answer is 1 point each. Some questions have multiple answers. Test total is 97 points.

Fifth Grade Color Math Test 8 Answers

Test 8 Answers Page 1

Solve the problems. Write answers in simplest form.

1. $\frac{3}{8} \times \frac{2}{5} \times \frac{4}{9} = \underline{\frac{1}{15}}$ 2. $\frac{1}{2} \times \frac{11}{12} \times \frac{24}{33} = \underline{\frac{1}{3}}$ 3. $\frac{5}{6} \times \frac{5}{9} \times \frac{12}{25} = \underline{\frac{2}{9}}$

4. $\frac{2}{3} + \frac{1}{2} + \frac{4}{5} = \underline{1 \frac{29}{30}}$ 5. $\frac{3}{4} + \frac{15}{16} + \frac{3}{8} = \underline{2 \frac{1}{16}}$ 6. $\frac{1}{4} + \frac{5}{6} + \frac{2}{3} = \underline{1 \frac{3}{4}}$

7. $\frac{5}{12} \div \frac{3}{4} = \underline{\frac{5}{9}}$ 8. $\frac{1}{2} \div \frac{2}{3} = \underline{\frac{3}{4}}$ 9. $\frac{6}{15} \div \frac{2}{5} = \underline{1}$

10. $\frac{1}{2} - \frac{1}{3} = \underline{\frac{1}{6}}$ 11. $\frac{6}{7} - \frac{3}{4} = \underline{\frac{3}{28}}$ 12. $\frac{2}{3} - \frac{3}{12} = \underline{\frac{5}{12}}$

13. Add: $3 \frac{4}{5} + 8 \frac{7}{10} = \underline{12 \frac{1}{2}}$ 14. Multiply: $2 \frac{5}{8} \times 6 \frac{6}{7} = \underline{18}$

15. $(9.6 \times 4.2) - 21.47 = \underline{18.85}$ 16. $(3.8 + 5.4) \times 7.3 = \underline{67.16}$

17. $3.8 \times 0.7 \times 1.6 = \underline{4.256}$ 18. $0.04 \times 8.2 \times 0.7 = \underline{0.2296}$

19. $\begin{array}{r} 5 \text{ cup } 12 \text{ tbsp} \\ \quad \quad \times 6 \\ \hline 30 \text{ cup } 72 \text{ tbsp} \\ \hline 34 \text{ cup } 8 \text{ tbsp} \end{array}$	20. $\begin{array}{r} 7 \text{ gal } 3 \text{ qt} \\ \quad \quad \times 9 \\ \hline 56 \text{ gal } 27 \text{ qt} \\ \hline 64 \text{ gal } 3 \text{ qt} \end{array}$	21. $\begin{array}{r} 3 \text{ qt } 26 \text{ oz} \\ \quad \quad \times 8 \\ \hline 24 \text{ qt } 208 \text{ oz} \\ \hline 30 \text{ qt } 16 \text{ oz} \end{array}$	22. $\begin{array}{r} 9 \text{ tbsp } 1 \text{ tsp} \\ \quad \quad \div 4 \\ \hline 28 \text{ tsp} \div 4 = 7 \text{ tsp} \\ \hline 2 \text{ tbsp } 1 \text{ tsp} \end{array}$	23. $\begin{array}{r} 4 \text{ gal } 11 \text{ cup} \\ \quad \quad \div 5 \\ \hline 75 \text{ cup} \div 5 = 15 \text{ cup} \end{array}$
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24. $\begin{array}{r} 2 \text{ cup } 11 \text{ tbsp } 2 \text{ tsp} \\ + 6 \text{ cup } 15 \text{ tbsp } 1 \text{ tsp} \\ \hline 9 \text{ cup } 11 \text{ tbsp } 0 \text{ tsp} \end{array}$	25. $\begin{array}{r} 7 \text{ gal } 2 \text{ qt } 24 \text{ oz} \\ + 3 \text{ gal } 3 \text{ qt } 16 \text{ oz} \\ \hline 11 \text{ gal } 2 \text{ qt } 8 \text{ oz} \end{array}$	26. $\begin{array}{r} 8 \text{ pt } 10 \text{ oz } 3 \text{ tsp} \\ - 2 \text{ pt } 10 \text{ oz } 5 \text{ tsp} \\ \hline 5 \text{ pt } 15 \text{ oz } 4 \text{ tsp} \end{array}$	27. $\begin{array}{r} 3 \text{ bu } 5 \text{ gal } 7 \text{ pt} \\ - 1 \text{ bu } 9 \text{ gal } 2 \text{ pt} \\ \hline 1 \text{ bu } 4 \text{ gal } 5 \text{ pt} \end{array}$
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Change the units from the first unit to the second.

1. 96 oz = 3 qt

2. 96 oz = 6 pt

3. 5 gal = 20 qt

4. 56 gal = 7 bushel

5. 9 pt = 144 oz

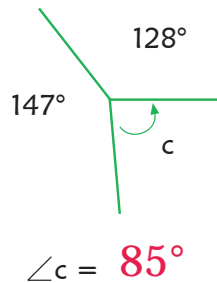
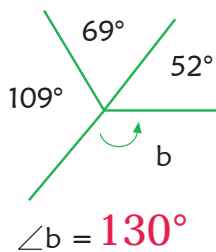
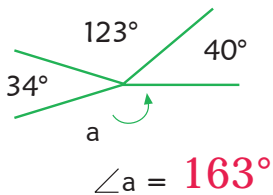
6. 27 tsp = 9 tbsp

1 tbsp = 3 tsp
 1 oz = 2 tbsp = 6 tsp
 1 cup = 16 tbsp
 1 cup = 8 oz
 1 pt = 16 oz
 1 qt = 32 oz
 1 gal = 128 oz
 2 pt = 1 qt
 4 qt = 1 gal
 8 gal = 1 Bushel

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Test 8 Answers Page 2

Find the missing angles.



Write a number for the probability of a coin toss or rolling dice with up to six dots on a side.

1. 3 Coin toss, 4 heads 0 2. Rolling 4, 5, or 6 on one dice 0.5 3. Rolling a number < 9 1
 4. Rolling a number > 12 on two dice 0 5. 5 coin toss. at least one head or tail 1

Find the area and perimeter of the central angles described. Use $\pi = 3.14$. Round to the nearest 100th. You may use your calculator on this part.

$$A = \pi r^2 \quad c = 2\pi r \quad p = c + 2r$$

1. Radius of 9 cm, angle 180° $180^\circ/360^\circ = \underline{0.5}$ Area 127.17 cm^2 Perimeter 46.26 cm
 2. Radius of 4 cm, angle 126° $126^\circ/360^\circ = \underline{0.35}$ Area 17.58 cm^2 Perimeter 16.79 cm

Look at the large number. Write the place value of the digits in the list.

173,420,356,943

7 ten billions
 2 ten millions
 0 millions

0.69534271

1 hundred millionths
 2 millionths
 3 ten thousandths

Find the value of the numbers with exponents.

1. 6^2 36 2. 5^3 125 3. 7^2 49 4. 7^3 343 5. 2^5 32

Find the prime factors of the numbers.

1. 168 2, 2, 2, 3, 7 2. 495 3, 3, 5, 11

Fifth Grade Color Math Test 8

Test 8 Answers

Page 3

1. $\frac{5}{8}$ of the cookies had chocolate chips. $\frac{2}{5}$ of those have walnuts, too. $\frac{1}{2}$ of those also have toffee chips. Write a problem and answer for cookies that have all three ingredients.

$$\frac{5}{8} \times \frac{2}{5} \times \frac{1}{2} = \frac{1}{8}$$

2. Which of the following has a probability closer to 1 than to 0? Mark all that are correct.

- A. Draw a nickel from a bag of 3 coins worth 15¢.
- B. Draw a red counter from a bag of 30 counters, 5 are red.
- C. Rolling 3 dice and getting at least one dice with a number less than 5.

3. A recipe calls for three tablespoons of sugar. If only a teaspoon is available to use to measure, how many teaspoons of sugar would you use in the recipe?

9 teaspoons

4. A recipe called for six cups and 7 tablespoons of flour. How much flour would it take to make 5 times the recipe?

32 cup 3 tbsp

5. An inequality is plotted with a solid dot at (2,5) and an arrow pointing up and right. Which is true about x ?

- A. $x \leq 2$
- B. $x > 2$
- C. $x \geq 2$

6. A plumber needed 8 pipes 3 feet and 10 inches long. What is the total length of pipe needed? Regroup to the largest units.

30 ft 8 in

7. A string wrapped around a can with a circumference of 20.4 inches, four and a half times. The area of the lid was 28.26 inches squared. What is the length of the string?

91.8 in

8. 15 gallons and 3 quarts of water filled 7 containers. Each container weighed 36 pounds. How much water was in each container?

2 gallons, 1 quart

9. In the number 547,165,452,983, what is the place value of the digit 5? Fill in all that apply.

- A. millions
- B. hundred billions
- C. ten thousands

10. A box with a gift in it was 2 inches tall, 8 inches wide, and 10 inches long. How much paper would it take to wrap it?

232 in²

Fifth Grade Color Math Test 8

Test 8 Answers Page 4

Solve for the inequalities and graph the lines. Label the lines with the letters.

A. $x \div 3 < 1$

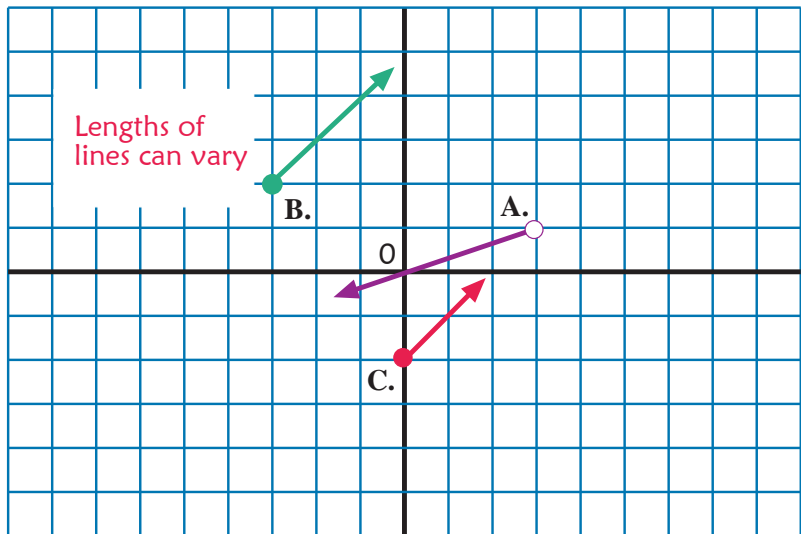
$x < 3$

B. $x + 5 \geq 2$

$x \geq -3$

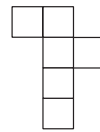
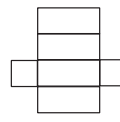
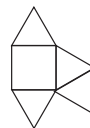
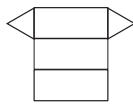
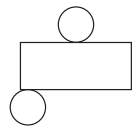
C. $x - 2 \geq -2$

$x \geq 0$



Which flattened pieces represent the solids? Match to the solid. Write the number on the lines under the shapes.

1. Cube



2. Cylinder

2

4

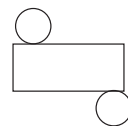
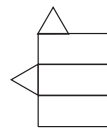
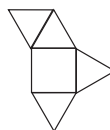
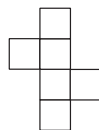
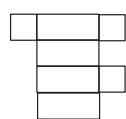
6

5

1

3. Pyramid

4. Triangular prism



5. Rectangular prism

6

1

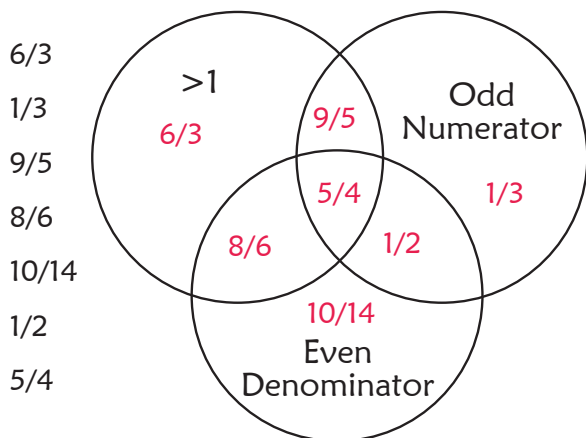
3

6

2

6. None

Organize the sets of numbers on the Venn diagrams



Find the surface area and volume of:

- An equilateral triangular prism with a base of 8, height of 4 and length of 6 cm.

Surface area 176 cm² Volume 96 cm³

- A rectangular prism with a height of 5, width of 3, and length of 7 feet.

Surface area 142 in² Volume 105 cm³

Solve the problems. Write answers in simplest form.

1. $\frac{3}{8} \times \frac{2}{5} \times \frac{4}{9} =$ _____ 2. $\frac{1}{2} \times \frac{11}{12} \times \frac{24}{33} =$ _____ 3. $\frac{5}{6} \times \frac{5}{9} \times \frac{12}{25} =$ _____

4. $\frac{2}{3} + \frac{1}{2} + \frac{4}{5} =$ _____ 5. $\frac{3}{4} + \frac{15}{16} + \frac{3}{8} =$ _____ 6. $\frac{1}{4} + \frac{5}{6} + \frac{2}{3} =$ _____

7. $\frac{5}{12} \div \frac{3}{4} =$ _____ 8. $\frac{1}{2} \div \frac{2}{3} =$ _____ 9. $\frac{6}{15} \div \frac{2}{5} =$ _____

10. $\frac{1}{2} - \frac{1}{3} =$ _____ 11. $\frac{6}{7} - \frac{3}{4} =$ _____ 12. $\frac{2}{3} - \frac{3}{12} =$ _____

13. **Add:** $3 \frac{4}{5} + 8 \frac{7}{10} =$ _____ 14. **Multiply:** $2 \frac{5}{8} \times 6 \frac{6}{7} =$ _____

15. $(9.6 \times 4.2) - 21.47 =$ _____ 16. $(3.8 + 5.4) \times 7.3 =$ _____

17. $3.8 \times 0.7 \times 1.6 =$ _____ 18. $0.04 \times 8.2 \times 0.7 =$ _____

19. $\begin{array}{r} 5 \text{ cup } 12 \text{ tbsp} \\ \times 6 \\ \hline \end{array}$	20. $\begin{array}{r} 7 \text{ gal } 3 \text{ qt} \\ \times 9 \\ \hline \end{array}$	21. $\begin{array}{r} 3 \text{ qt } 26 \text{ oz} \\ \times 8 \\ \hline \end{array}$	22. $\begin{array}{r} 9 \text{ tbsp } 1 \text{ tsp} \\ \div 4 \\ \hline \end{array}$	23. $\begin{array}{r} 4 \text{ gal } 11 \text{ cup} \\ \div 5 \\ \hline \end{array}$
_____	_____	_____	_____	_____

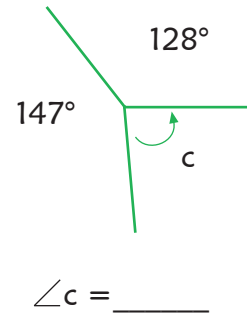
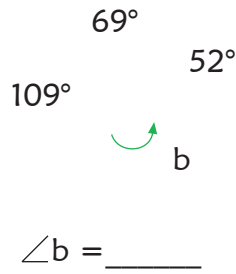
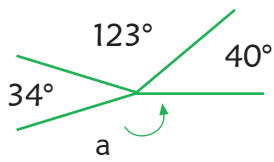
24. $\begin{array}{r} 2 \text{ cup } 11 \text{ tbsp } 2 \text{ tsp} \\ + 6 \text{ cup } 15 \text{ tbsp } 1 \text{ tsp} \\ \hline \end{array}$	25. $\begin{array}{r} 7 \text{ gal } 2 \text{ qt } 24 \text{ oz} \\ + 3 \text{ gal } 3 \text{ qt } 16 \text{ oz} \\ \hline \end{array}$	26. $\begin{array}{r} 8 \text{ pt } 10 \text{ oz } 3 \text{ tsp} \\ - 2 \text{ pt } 10 \text{ oz } 5 \text{ tsp} \\ \hline \end{array}$	27. $\begin{array}{r} 3 \text{ bu } 5 \text{ gal } 7 \text{ pt} \\ - 1 \text{ bu } 9 \text{ gal } 2 \text{ pt} \\ \hline \end{array}$
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Change the units from the first unit to the second.

- | | |
|---------------------|--------------------------|
| 1. 96 oz = _____ qt | 2. 96 oz = _____ pt |
| 3. 5 gal = _____ qt | 4. 56 gal = _____ bushel |
| 5. 9 pt = _____ oz | 6. 27 tsp = _____ tbsp |

1 tbsp = 3 tsp
 1 oz = 2 tbsp = 6 tsp
 1 cup = 16 tbsp
 1 cup = 8 oz
 1 pt = 16 oz
 1 qt = 32 oz
 1 gal = 128 oz
 2 pt = 1 qt
 4 qt = 1 gal
 8 gal = 1 Bushel

Find the missing angles.



Write a number for the probability of a coin toss or rolling dice with up to six dots on a side.

1. 3 Coin toss, 4 heads $\underline{\hspace{1cm}}$
2. Rolling 4, 5, or 6 on one dice $\underline{\hspace{1cm}}$
3. Rolling a number < 9 $\underline{\hspace{1cm}}$
4. Rolling a number > 12 on two dice $\underline{\hspace{1cm}}$
5. 5 coin toss. at least one head or tail $\underline{\hspace{1cm}}$

Find the area and perimeter of the central angles described. Use $\pi = 3.14$. Round to the nearest 100th. You may use your calculator on this part.

$A = \pi r^2$ $c = 2\pi r$ $p = c + 2r$

1. Radius of 9 cm, angle 180° $180^\circ/360^\circ = \underline{\hspace{1cm}}$ Area $\underline{\hspace{1cm}}$ Perimeter $\underline{\hspace{1cm}}$
2. Radius of 4 cm, angle 126° $126^\circ/360^\circ = \underline{\hspace{1cm}}$ Area $\underline{\hspace{1cm}}$ Perimeter $\underline{\hspace{1cm}}$

Look at the large number. Write the place value of the digits in the list.

173,420,356,943

- 7 $\underline{\hspace{10cm}}$
- 2 $\underline{\hspace{10cm}}$
- 0 $\underline{\hspace{10cm}}$

0.69534271

- 1 $\underline{\hspace{10cm}}$
- 2 $\underline{\hspace{10cm}}$
- 3 $\underline{\hspace{10cm}}$

Find the value of the numbers with exponents.

1. 6^2 $\underline{\hspace{1cm}}$
2. 5^3 $\underline{\hspace{1cm}}$
3. 7^2 $\underline{\hspace{1cm}}$
4. 7^3 $\underline{\hspace{1cm}}$
5. 2^5 $\underline{\hspace{1cm}}$

Find the prime factors of the numbers.

1. 168 $\underline{\hspace{10cm}}$
2. 495 $\underline{\hspace{10cm}}$

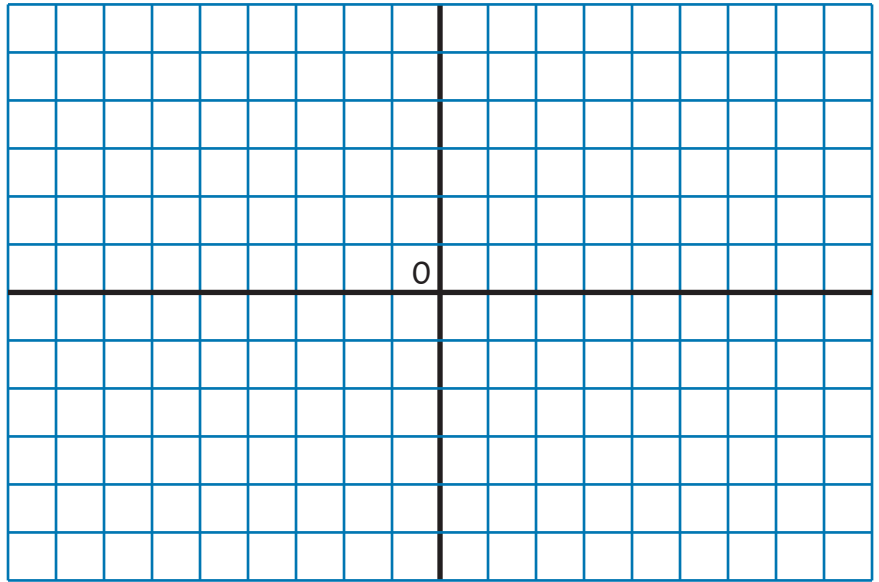
1. $\frac{5}{8}$ of the cookies had chocolate chips. $\frac{2}{5}$ of those have walnuts, too. $\frac{1}{2}$ of those also have toffee chips. Write a problem and answer for cookies that have all three ingredients.
-
2. Which of the following has a probability closer to 1 than to 0? Mark all that are correct.
- A. Draw a nickel from a bag of 3 coins worth 15¢.
- B. Draw a red counter from a bag of 30 counters, 5 are red.
- C. Rolling 3 dice and getting at least one dice with a number less than 5.
3. A recipe calls for 3 tablespoons of sugar. If only a teaspoon is available to use to measure, how many teaspoons of sugar would you use in the recipe?
-
4. A recipe called for 6 cups and 7 tablespoons of flour. How much flour would it take to make 5 times the recipe?
-
5. An inequality is plotted with a solid dot at (2,5) and an arrow pointing up and right. Which is true about x ?
- A. $x \leq 2$
- B. $x > 2$
- C. $x \geq 2$
6. A plumber needed 8 pipes 3 feet and 10 inches long. What is the total length of pipe needed? Regroup to the largest units.
-
7. A string wrapped $4\frac{1}{2}$ times around a can with a circumference of 20.4 inches. The area of the lid was 28.26 inches squared. What is the length of the string?
-
8. 15 gallons and 3 quarts of water filled 7 containers. Each container weighed 36 pounds. How much water was in each container?
-
9. In the number 547,165,452,983, what is the place value of the digit 5? Fill in all that apply.
- A. millions
- B. hundred billions
- C. ten thousands
10. A gift box was 2 inches tall, 8 inches wide, and 10 inches long. How much paper would it take to wrap it?
-

Solve for the inequalities and graph the lines. Label the lines with the letters.

A. $x \div 3 < 1$

B. $x + 5 \geq 2$

C. $x - 2 \geq -2$



Which flattened pieces represent the solids? Match to the solid. Write the number on the lines under the shapes.

1. Cube

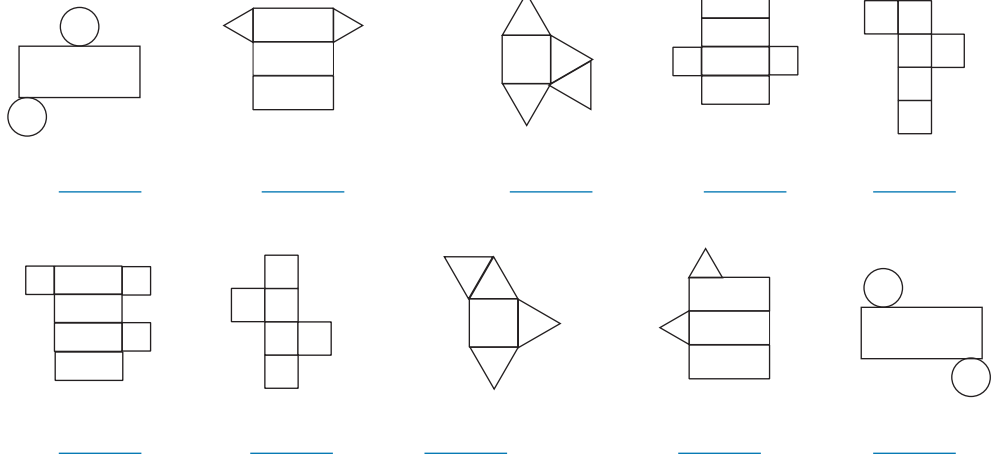
2. Cylinder

3. Pyramid

4. Triangular prism

5. Rectangular prism

6. None



Organize the sets of numbers into the Venn diagrams

6/3

1/3

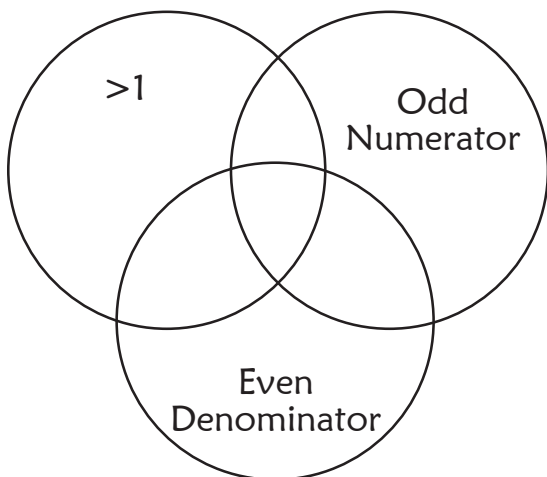
9/5

8/6

10/14

1/2

5/4



Find the surface area and volume of:

1. An equilateral triangular prism with a base of 8, height of 4 and length of 6 cm.

Surface area _____ Volume _____

2. A rectangular prism with a height of 5, width of 3, and length of 7 feet.

Surface area _____ Volume _____