

## 2017 Summer Math Packet

Dear parents as we continue to grow and strengthen our school's math program, we have decided that we will begin to provide our students with a tool to review and prepare for the following math grade level expectations. As you know summer readings have been in placed for a while. This year we are extending the summer experience to include math skills. We encourage you to continue to foster a belief in the importance and enjoyment of mathematics at home. Being actively involved in mathematical activities enhances learning. In preparation for the 2017-2018 school year, each student from Kindergarten to 8th grade is required to complete a summer math review packet. Each packet correlates to the standards of learning as identified and approved by the Diocese of Paterson and the Department of Education. As the packets are aligned to the Terranova Standardized testing, they focus on the prerequisite concepts and skills necessary for student success in each math class. During the first week of school, students will be required to turn in their packets for a grade. Review Skill worksheets will receive an assessment grade and Choice Board Activities will receive a project grade.

- ❖ Skills worksheets: Complete the packet, show work when necessary.
- ❖ Choice Boards:
  - Choose 1 project from the "Board"- Grades 1 to 4
  - 2 - 3 project "Boards" will be assigned - Grades 5 to 8
  - All packets will be available for download at the Holy Spirit website.

The work was designed to support instruction in the new curriculum in both its content and presentation. Activities may be done independently or with a parent, guardian or older brother or sister. Talking about the problem can be an important part of completing some activities

### How Holy Spirit's Summer Math Program Works:

- Students set their own goals for completing math activities.
- Students use the math packet to complete and record responses for the activities.
- Summer Math Packet is returned to school during the week of September 11th-15th.
- Students completing the Summer Math Packet will:
  - Receive a summer math certificate.

Summer Packet may have all or some to the following major content areas:

Standard 1: Operations and Algebraic Thinking Activity

Standard 2: Number and Operations

Standard 3: Measurement and Data

Standard 4: Geometry

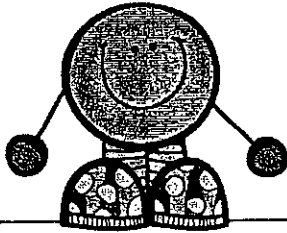
The purpose of the summer math packet is to make sure students are prepared to start the year by understanding the prerequisite skills. We understand that summer is a busy time for families. If possible, the math department recommends that the packet is completed towards the end of the summer to ensure the skills are secured for the start of the year. The administration and the Math teachers wish you and your family a safe, happy, healthy and mathematically thrilling summer!

Thank you for your continued support,

*Fr. Marie Antonelli* M.F.P.  
Principal

*Faculty of Holy Spirit School*





# Statistics Choice Board

*\* Choose 2 \**

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<p><b><u>Poster</u></b></p> <p>Create a poster for a younger student teaching them what median, mode, and range is. For each, give a definition, an example, and step-by-step directions on how to find. Why do we need to know them?</p>	<p><b><u>Real World Connections</u></b></p> <p>Using a newspaper, create an example problem of median, mode, and range based on information found in the newspaper, using any section. Give step-by-step directions on how to solve each. Be creative.</p>	<p><b><u>Create a Graph</u></b></p> <p>Using a newspaper, create an bar graph or line graph based on information found in the newspaper. You may use any section of the newspaper. Be creative.</p>
<p><b><u>Graphs Galore</u></b></p> <p>Create a bar graph, line graph, and picture graph for a given table of data that you have created. Then create a list of at least 10 questions based on the graphs.</p>	<p><b><u>Video</u></b></p> <p>Create a video showing and explaining how to find the median, mode, and range of a set of numbers. Include examples and step-by-step directions.</p>	<p><b><u>Foldable</u></b></p> <p>Create a foldable on median, mode, and range is. For each, give a definition, an example, and step-by-step directions on how to find. Give reasons why we need to know each.</p>
<p><b><u>Game</u></b></p> <p>Design and create a game on bar graphs and line graphs. Include at least 3 different graphs, which your questions come from. Include the game rules, question cards, and an answer key. Be creative!</p>	<p><b><u>Quiz</u></b></p> <p>Create a 10-question quiz on median, mode, and range. Include an answer key.</p>	<p><b><u>Computer Project</u></b></p> <p>Design a computer project that explains how to find the median, mode, and range of a set of numbers. Include step-by-step directions and pictures.</p>

# Addition and Subtraction of Fractions and Mixed Numbers

## Adding and Subtracting Fractions:

- 1) Rewrite the fractions with a common denominator
- 2) Add or subtract the numerators
- 3) Simplify the fraction

$$\frac{1}{1} + \frac{1}{6} = \frac{3}{3} + \frac{1}{6} = \frac{3 \times 2}{6} + \frac{1 \times 1}{6} = \frac{6}{6} + \frac{1}{6} = \frac{7}{6}$$

## Adding and Subtracting Mixed Numbers:

- 1) Rewrite the fractions with a common denominator
- 2) Rename, if necessary
- 3) Add or subtract the fractions. Add or subtract the whole numbers
- 4) Simplify if necessary

$$3\frac{1}{3} - 1\frac{1}{4} = 2\frac{4}{12} + \frac{12}{12} - 1\frac{3}{12} = 3\frac{16}{12} - 1\frac{3}{12} = 2\frac{13}{12} = 2\frac{11}{12}$$

Find the sum. Write your answer in simplest form.

1.  $\frac{1}{4} + \frac{1}{2}$

2.  $\frac{2}{5} + \frac{1}{3}$

3.  $\frac{7}{15} + \frac{3}{10}$

4.  $\frac{11}{28} + \frac{4}{7}$

5.  $\frac{3}{4} + \frac{1}{12}$

6.  $\frac{9}{10} + \frac{13}{20}$

7.  $4\frac{15}{16} + 7\frac{3}{4}$

8.  $2\frac{16}{25} + 3\frac{18}{20}$

9.  $3\frac{2}{5} + 9\frac{1}{10}$

10.  $6\frac{1}{42} + 4\frac{5}{6}$

11.  $18\frac{7}{9} + 16$

12.  $4\frac{7}{8} + \frac{1}{3}$

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Find the difference. Write your answer in simplest form.

13.  $\frac{7}{8} - \frac{1}{4}$

14.  $\frac{13}{15} - \frac{1}{3}$

15.  $\frac{7}{9} - \frac{2}{6}$

16.  $\frac{21}{24} - \frac{3}{8}$

17.  $\frac{3}{14} - \frac{1}{7}$

18.  $\frac{9}{10} - \frac{1}{2}$

19.  $9\frac{1}{6} - 4\frac{1}{12}$

20.  $12\frac{18}{25} - 8\frac{4}{5}$

21.  $5\frac{8}{9} - 3\frac{2}{3}$

22.  $8\frac{12}{16} - 7\frac{31}{32}$

23.  $10\frac{3}{4} - 6\frac{4}{5}$

24.  $13\frac{7}{8} - \frac{10}{12}$

# Multiplication and Division of Fractions and Mixed Numbers

## Multiplying Fractions and Mixed Numbers:

- 1) Convert mixed numbers to improper fractions
- 2) Cross simplify if possible
- 3) Multiply the 2 numerators and then multiply the 2 denominators
- 4) Simplify if necessary

$$2\frac{1}{4} \cdot \frac{1}{3} = \frac{2 \cdot 1}{4 \cdot 3} = \frac{2}{4} \cdot \frac{1}{3} = \frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$$

## Dividing Fractions and Mixed Numbers:

- 1) Convert mixed numbers to improper fractions
- 2) "Same Change, Flip" (keep first fraction the same, change division to multiplication, flip second fraction to its reciprocal)
- 3) Cross simplify if possible and then multiply
- 4) Simplify if necessary

$$\frac{3}{9} \div \frac{7}{10} = \frac{3}{9} \cdot \frac{10}{7} = \frac{3 \cdot 10}{9 \cdot 7} = \frac{30}{63} = \frac{10}{21}$$

Find the product. Write your answer in simplest form.

25.  $\frac{1}{8} \cdot \frac{1}{7}$

26.  $\frac{2}{9} \cdot \frac{12}{14}$

27.  $\frac{7}{12} \cdot \frac{8}{14}$

28.  $\frac{9}{24} \cdot \frac{16}{81}$

29.  $\frac{3}{14} \cdot \frac{21}{33}$

30.  $\frac{1}{2} \cdot \frac{9}{13}$

31.  $2\frac{1}{6} \cdot \frac{3}{5}$

32.  $8\frac{4}{5} \cdot 1\frac{5}{11}$

33.  $2\frac{1}{2} \cdot \frac{2}{5}$

34.  $9\frac{2}{3} \cdot 6$

35.  $13\frac{1}{3} \cdot 2\frac{1}{10}$

36.  $7 \cdot \frac{1}{3}$

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Find the quotient. Write your answer in simplest form.

37.  $\frac{5}{6} \div \frac{1}{4}$

38.  $\frac{1}{2} \div \frac{1}{4}$

39.  $\frac{3}{4} \div \frac{9}{12}$

40.  $\frac{21}{35} \div \frac{7}{25}$

41.  $\frac{6}{7} \div 3$

42.  $\frac{2}{11} \div \frac{1}{33}$

43.  $1\frac{1}{4} \div 2\frac{1}{3}$

44.  $5\frac{3}{6} \div 3$

45.  $10\frac{1}{4} \div \frac{2}{5}$

46.  $3\frac{2}{3} \div 1\frac{1}{7}$

47.  $4\frac{3}{8} \div \frac{9}{10}$

48.  $8 \div \frac{3}{4}$

# Operations with Decimals

## Adding and Subtracting Decimals:

- 1) Line up decimal points
- 2) Bring the decimal down
- 3) Add or subtract as if numbers are whole numbers

$$\begin{array}{r} 5.2 \\ + 10.03 \\ \hline 15.23 \end{array}$$

$$5.2 + 10.03$$

## Multiplying Decimals:

- 1) Ignore the decimal points
- 2) Multiply as if numbers are whole numbers
- 3) Count the number of decimal places in the problem and move the decimal point in answer that many places

$$\begin{array}{r} 1.03 \\ \times 2.8 \\ \hline 824 \\ 2060 \\ \hline 2884 \end{array}$$

$$1.03 \times 2.8$$

## Dividing Decimals:

- 1) If there is a decimal in the divisor, move it to the end of the number and move the decimal in the dividend the same number of places
- 2) Bring decimal point in dividend straight up
- 3) Divide. Add zeros to dividend and bring down if necessary.

$$\begin{array}{r} 5.3 \\ \overline{) 64.0} \\ \underline{26} \phantom{0} \\ 38 \phantom{0} \\ \underline{36} \phantom{0} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

$$6.4 \div 1.2$$



Find the sum or difference

49.  $6.2 + 3.4$       50.  $8.04 - 6.8$       51.  $12.4 + 0.899$       52.  $12.9 - 2.043$

53.  $163.29 + 13.987$       54.  $13 - 6.7$       55.  $3.91 + 1.93$       56.  $34.2 - 29.027$

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Find the product.

57.  $9.2 \times 3.1$       58.  $(14.1)(2.7)$       59.  $91 \times 4.5$       60.  $(82.04)(1.2)$

61.  $(1.1)(6.78)$       62.  $45 \times 0.1$       63.  $0.010 \times 13.9$       64.  $(2.34)(5.6)$

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Find the quotient.

65.  $2 \overline{)8.4}$       66.  $13 \overline{)1.56}$       67.  $2 \overline{)7.45}$       68.  $8 \overline{)9}$

69.  $3.4 \overline{)68}$       70.  $0.2 \overline{)9.4}$       71.  $0.15 \overline{)0.045}$       72.  $0.3 \overline{)4}$

# Geometry

Area Formulas: (remember area = the space inside a figure)

Area of Rectangle = length  $\times$  width

Area of Triangle =  $\frac{1}{2}$  base  $\times$  height

Area of Circle =  $\pi \cdot \text{radius}^2$

Area of Parallelogram = base  $\times$  height

Perimeter: (remember perimeter = the distance around a figure)

Perimeter of any polygon: add up all the sides

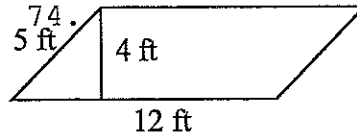
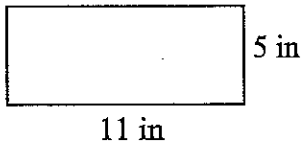
Circumference of Circle =  $2 \cdot \pi \cdot \text{radius}$

Volume: (remember volume = the capacity of a 3D figure)

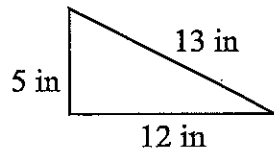
Volume of Rectangular Prism = length  $\times$  width  $\times$  height  
 $\pi \cdot \text{diameter}$

Find the area and perimeter (or circumference). Use 3.14 for pi:

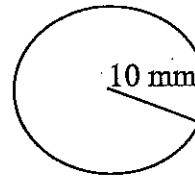
73.



75.

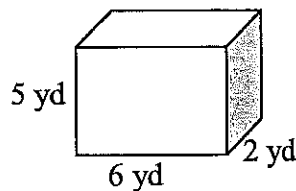


76.



Find the volume:

77.



Solve the word problem:

78. Danny is installing a fence around his rectangular yard. His yard is 20 feet long by 45 feet wide. If the fencing he picked out costs \$25 per foot, how much money will Danny spend on the fence?
79. Tameka wants to put a carpet in her rectangular bedroom. Her room is 22 feet long by 18 feet wide. How much carpeting will Tameka need?
80. Don wants to bring some sand home from his vacation at the beach. He has a box that is 3 inches wide, 4 inches long and 2 inches tall. How much sand can he fit in the box?

# Solving One-step Equations

## Addition Equations:

$$x + 3 = 9$$

$$x + 3 = 9$$

$$-3 \quad -3$$


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$$x = 6$$

Subtract the number on the same side of the equal sign as the variable from each side of the equation

## Subtraction Equations:

$$14 = x - 7$$

$$14 = x - 7$$

$$+7 \quad +7$$


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$$21 = x$$

Add the number on the same side of the equal sign as the variable to each side of the equation

## Multiplication Equations:

$$5m = 105$$

$$5m = 105$$

$$\div 5 \quad \div 5$$


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$$m = 21$$

Divide each side of the equation by the number on the same side of the equal sign as the variable

## Division Equations:

$$\frac{y}{13} = 5$$

$$\frac{y}{13} = 5 \times 13$$

$$\cancel{13} \times \frac{y}{\cancel{13}} = 5 \times 13$$


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$$y = 65$$

Multiply each side of the equation by the number on the same side of the equal sign as the variable

Solve for the given variable:

81.  $x + 18 = 32$

82.  $18f = 720$

83.  $h - 56 = 57$

84.  $\frac{b}{6} = 12$

85.  $12 = r - 76$

86.  $33 + d = 65$

87.  $14m = 42$

88.  $10c = 5$

89.  $38 = 19j$

90.  $w + 65 = 100$

91.  $r - 7 = 9$

92.  $x \div 12 = 9$

93.  $14 + x = 18$

94.  $\frac{p}{22} = 7$

95.  $47 = x - 5$

96.  $k + 16 = 76$

97.  $2 = 6m$

98.  $t - 8 = 14$

99.  $\frac{h}{19} = 11$

100.  $47 = 18 + b$

