$$
\begin{aligned}
& \text { Simply } \\
& \text { Good and Beautiful } \\
& \text { MATH } 5 \\
& \text { C.ORKE Q }
\end{aligned}
$$

Goodd Beantiful

## Mini Lesson

Number patterns are numbers arranged following a rule or rules. There are so many beautiful patterns in our universe!


A sequence is a list of numbers following a certain pattern. Each number in a sequence is called a term. The sequence of odd numbers below has four terms.

1, 3, 5, 7
When a sequence continues on without stopping, it is called an infinite sequence. Three dots (called an ellipsis) are used to show that this sequence of even numbers continues on.

## $2,4,6,8,10$,

Math patterns follow rules. Once you figure out the rule, you can fill in or continue a pattern or sequence.

The sequence below is missing four terms. To complete the sequence, look at the numbers to see how they change from one number to the next. Are they increasing or decreasing? By how much? Fill in the blanks below.

$$
30,27,24,
$$

$\qquad$ $18,15,12$, $\qquad$

Let's check it! The numbers are going down by 3 , so the rule is subtract 3. Using the rule, the missing terms in the sequence can now be filled in: $30,27,24, \underline{21}, 18,15,12, \underline{9}, \underline{6}, \underline{3}$.

## Practice

I. Count the number of leaves in each box to find the number pattern. Then draw the two missing pictures. Use your imagination!

2. Complete the sequence.

$$
4,12,20,28,36,44,52,60
$$

3. Finish the pattern.

4. Write a sequence of odd numbers, starting with 1 .

$$
1,3,5,7,9,11,13,15
$$

5. Finish the pattern.

6. Complete the sequence.
$54,45,36,27,18,9,0$
7. Fill in the missing numbers.

8. Finish the three patterns by drawing the correct number of dots.

9. Write a sequence of even numbers starting at 22 and
ending with IO .

## Answers may vary. Possible answer:

$22,20,18,16,14,12,10$
IO. You mow a neighbor's lawn each week and earn $\$ 12$ each time. Complete the sequence showing how much you will earn after working 9 weeks.

$$
\begin{aligned}
& \$ 12, \$ 24, \frac{\$ 36}{\$ 72}, \frac{\$ 48}{\$ 84}, \frac{\$ 60}{\$ 96}, \frac{\$ 108}{\pi} \\
& \text { Weok } 9
\end{aligned}
$$

I. Every month you donate $\$ 7$ to help families in need. For how many months can you donate if you start with $\$ 9$ ? (You'll need to add more lines until you get to $\$ 7$. Then count the number of terms-or months-in your sequence.)
$\$ 91, \$ 84, \$ 77, \$ 70$,
$\$ 63, \$ 56, \$ 49, \$ 42, \$ 35$,
$\$ 28, \$ 21, \$ 14, \$ 7$


Think: Why did you stop at
$\$ 7$ instead of \$0?
12. Follow the pattern to draw the correct number of spots on the fourth insect.


## Review

I. Draw a circle around the odd numbers and draw an X on the even numbers. \& Hint: If the last digit is $0,2,4,6$, or 8 , the number is even. If not, it is odd.
2. Complete the problems.
$11 \times 12=132$
$121 \div 11=11$
25

MATH 5

## FACTORS OF PRIME AND COMPOSITE NUMBERS

D Complete today's Math 5 Mental Math Map Mysteries activity. Watch the video lesson and/or read the mini lesson.

## Video Lesson

Scan the QR code or watch the video lesson on goodandbeautiful.com /Math5. The section below is used during the video.


## Mini Lesson

Whole numbers are numbers representing a whole amount, not fractions or decimals. Examples of whole numbers are 0,5 , and 126 . The following numbers are NOT whole numbers: 1.2 and $3 \frac{1}{2}$.

Factors are numbers that are multiplied together to form a product. Factors of a number refer to the whole numbers that can be multiplied together to make the given number. The answer to a multiplication problem is the product


A prime number is a whole number that has exactly two factors: the number itself and the number 1. An example of a prime number is 37 .

$$
37 \times 1=37
$$

Only the whole number factors 37 and 1 can be multiplied to equal 37 . The factors of 37 are written 1, 37.

Remember these rules about listing factors:

- Factors are written in order from least to greatest
- Factors have commas between them.
- Each factor is written only once.

A composite number is a whole number that has more than two factors. An example of a composite number is 16 . The number 16 has factors other than itself and the number 1.

$$
1 \times 16=16 \quad 2 \times 8=16 \quad 4 \times 4=16
$$

The factors of 16 are written $1,2,4,8,16$. (Remember not to list factors more than once.)

The numbers 0 and 1 are neither prime nor composite. The number 2 is the only even number that is a prime number.


MATH

Write the house numbers (the answers to the math problems on the previous page) on the lines below, in order from least to greatest. $13, \underline{14}, \underline{17}, \underline{18}, \underline{29}, \underline{32}, \underline{80}, \underline{196}, \underline{201}, \underline{225}, \underline{459}, \underline{500}, \underline{720}, \underline{735}$
sing the numbers listed above, read each clue to fill out the chart and determine which house each child lives in. Sometimes you will use the clues to write numbers on the chart, and sometimes you will use the clues to cross numbers off the chart. Circle the correct house number for each child. The first clue is done for you.

| Mia | 80 | (225) | 500 | 720 | 735 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| McKay | (18) | 720 | $\uparrow$ Hint: Some of the rows, like McKay's, won't have numbers all the way across. |  |  |
| Heidi | 80 | 500 | (720) |  |  |
| Grayson | (32) | 80 | 196 | 500 | 720 |
| Sawyer | 201 | 225 | 459 | (735) |  |
| Elijah | 13 | (17) | 29 |  |  |
| Domenic | (80) | 201 | 500 | 720 |  |

## Clues:

$\checkmark$ Mia's address is divisible by 5 .
$\square$ McKay's address is divisible by 6 .
$\square$ Heidi's address is divisible by 10 .
$\square$ Grayson's address is divisible by 4 .
$\square$ Sawyer's address is odd and greater than 100 .
$\square$ Elijah's address is a two-digit prime number.
$\square$ If you multiply the digits of Domenic's address, the product is 0 .
$\square$ Mia's address is 15 squared.
$\square$ Elijah's address is greater than $4^{2}$ and less than $3^{3}$
$\square$ If you multiply the digits of Grayson's address, the product is greater than 2 and less than IO.
$\square$ McKay's address is less than the quotient of $5,000 \div 10^{2}$.
$\square$ Heidi's address is divisible by 8 and greater than IOO.
$\square$ Domenic's address is less than the sum of $4^{2}+5^{2}+6^{2}+4$.
$\square$ Sawyer's address is greater than $8^{3}$.

MATH 5 O




- Jenny Phillips

M
Math 5 Answer Key


For the figure above, write the number of: O pairs of parallel sides 1 right angles O sides that are equal in length

What is the most specific name for this shape? scalene right triangle
b. vertices: $(1,6),(-5,6),(-5,-4),(1,-4)$
Write the number of sides: $\qquad$
Using the number of sides, check all the boxes the shape may be:

| $\square$ triangle | $\square$ rhombus | $\square$ trapezium |
| :--- | :--- | :--- |
| $\mathbb{\text { parallelogram }}$ | $\square$ trapezoid | $\square$ pentagon |
| $\mathbb{Q}$ rectangle | $\square$ square | $\square$ hexagon |

Plot the vertices on the coordinate plane and connect the points in the order they are given. Connect the first point to the last point.


For the figure above, write the number of: 2 pairs of parallel sides 4 right angles 2 pairs of sides that are equal in length
What is the most specific name for this shape? rectangle
c. vertices: $(-3,-3),(-3,2),(1,2),(5,-3)$
Write the number of sides: $\quad$ U
Using the number of sides, check all the boxes the
shape may be:
$\square$ triangle $\quad \square$ rhombus $\quad \checkmark$ trapezium
$\square$ parallelogram $\quad$ trapezoid $\quad \square$ pentagon
$\square$ rectangle $\square$ square $\quad \square$ hexagon
Plot the vertices on the coordinate plane and
connect the points in the order they are given.
Connect the first point to the last point.


For the figure above, write the number of: 1 pairs of parallel sides 2 right angles O sides that are equal in length

What is the most specific name for this shape? trapezoid O.Jeny Philios

3. Reflect the pentagon over the $x$-axis.
Write the coordinates of the reflected shape.
$(\underline{(-8,0)}, \underline{(-8,-6)}, \underline{(-2,-4)}, \underline{(2,-4)}, \underline{(5,0)}$

4. The preimage triangle is green, and the orange triangle shows a ${ }^{\text {transformation. Mark the correct boxes. }}$ The yellow triangle shows a
$\square$ reflection $\square$ translation $\boxtimes$ rotation that is in a $\downarrow$ clockwise $\square$ counterclockwise direction of $\$ 90^{\circ}-180^{\circ}$ around the direction of $\triangle$-axis $\square y$-axis $\square$ red do. Write the $\square x$-axis $\square y$-axis $\triangle$ red dot. Write the
coordinates of the translated triangle.
5. Draw an image showing a translation of the rectangle IO units to the left and 3 units down. Then write the coordinates of the translated rectangle.


I. Write each ratio in simplest form.
9:12 3:4
$20: 15 \quad 4: 3$
18 to $42 \quad 3: 7 \quad 25: 100 \quad 1: 4$
2. Measure the angles with a protractor.

3. Find the mean, median, mode, and range of the data set below.
mean: $\frac{46,36,21,26,46,41,15}{43}$ median: $\frac{36}{36}$ mode: $\frac{36}{46}$
4. Multiply or divide by powers of 10 .
$83 \times 10^{3}=83,000 \quad 195 \times 10^{6}=195,000,000$
$67.000,000 \div 10^{5}=670$
$10,300,000 \div 10^{4}=1,030$
$8,000,000,000,000 \div 10^{12}=8$
5. Use long division and write each quotient as a mixed number.



## \% ORDER OF OPERATIONS (LESSON 13)

Use the order of operations to find each answer.
$28+5 \times 2-2^{3}=30$
$3^{2} \times(32 \div 4)+11=83$

## : Additional Practice

Perform operations in this order: parentheses, exponents, multiplication and division from left to right, and addition and subtraction from left to right. "Please excuse my dear Aunt Sally."
Use the order of operations to find each answer.
$40-(8 \times 10) \div 2^{2}=20 \quad 9 \times 2^{3}-12 \div 3=68$

## MEAN. MEDIAN. MODE \& RANGE (LESSONS 17.18 \& 93)



Find the mean, median, mode, and range of the data set.

$$
4.3,3,7.1,3,5.1,9.3
$$

mean: 5.3 median: $\qquad$ mode: $\qquad$ range: 6.3 Additional Practice
mean: Add the numbers and divide by the number of addends. median: This is the middle number or mean of the two middle numbers. mode: This is the number or numbers that appear most often. range: Subtract the smallest number from the largest number.

Find the mean, median, mode, and range of the data set.
7.2, 3.1, 8, 4.5, 8, 9.4
mean: $\qquad$ median: $\qquad$ 7.6 mode: $\qquad$ range: 6.3

## ORDER FRACTIONS E DECIMAL NUMBERS (LESSONS 34 \& 52)

Write the fractions and decimal numbers in order from least to greatest. $\frac{3}{8}, \frac{7}{10}, \frac{7}{6}, \frac{1}{2} \quad 8.4333,8.43,8.4351,8.05,8.45$ $\frac{3}{8}, \frac{1}{2}, \frac{7}{10}, \frac{7}{6} \quad 8.05,8.43,8.4333,8.4351,8.45$ $\therefore \quad \square$ Addition al Practice
If the numerator is more than half of the denominator, the fraction is greater than $\frac{1}{2}$. If the numerator is less than half of the denominator, the fraction is less than $\frac{1}{2}$.

To compare decimal numbers, start with the largest place value, moving from left to right. The number with the greater digit is the greater number. Write the fractions and decimal numbers in order from least to greatest. $\frac{8}{7}, \frac{1}{2}, \frac{4}{9}, \frac{7}{12}$ $\frac{4}{9}, \frac{1}{2}, \frac{7}{12}, \frac{8}{7}$ $\qquad$ 50785.07825.

## ROUNDING E

PLACE VALUE (Lessons 39.46.51 \& 67) \&
Round $4,892,583,109.7925$ to the place values shown.
billions: 5,000,000,000 hundredths: $4,892,583,109.79$

Round the fractions and mixed numbers to the nearest whole number.
$\frac{3}{10} 0$
$12 \frac{1}{2} 13$
$\frac{48}{7} 7$

## ] Additional Practice

When rounding, if the digit to the right is less than 5 , round down. If the digit to the right is 5 or more, round up. Fractions $\frac{1}{2}$ or greater round up. Fractions less than $\frac{1}{2}$ round down.
Round $9,624,702,544.5614$ to the place values shown.
millions: $9,625,000,000$ thousandths: $\underline{9,624,702,544.561}$
Round the fractions and mixed numbers to the nearest whole number.
b 51
$15 \frac{4}{11} 15$
$\frac{67}{8} 8$

Jenny Phillips

MATH 5

CONVERTING UNITS OF LENGTH. WEIGHT \& CAPACITY (LESSONS 21. 32 \& 81 ) $\mathcal{B}$
Convert from one unit to another

| $5,000 \mathrm{~mm}=500 \mathrm{~cm}=5 \mathrm{~m}$ | $36 \mathrm{in}=3 \mathrm{ft}=1 \mathrm{yd}$ |
| :---: | :---: |
| $8,000 \mathrm{~g}=8 \mathrm{~kg}$ | $3 \mathrm{lb}=48 \mathrm{oz}$ |
| $7.23 \mathrm{~L}=7.230 \mathrm{~mL}$ | $12 \mathrm{qt}=3$ |

$7.23 \mathrm{~L}=7.230 \mathrm{~mL}$
$12 \mathrm{qt}=3 \mathrm{gal}$


Convert from one unit to another
$9,000 \mathrm{~mm}=900 \mathrm{~cm}$ \% $\quad \mathrm{m}$
$72 \mathrm{in}=6 \mathrm{ft}=2 \mathrm{yd}$
$7 \mathrm{~kg}=7.000 \mathrm{~g} \quad 32 \mathrm{oz}=2 \mathrm{lb}$
$89.042 \mathrm{~mL}=89.042 \mathrm{~L}$

$$
2 q t=8 \mathrm{c}
$$

## PROBABILITY

 (LESSON 55)What is the probability of rolling a dice one time and having it land on
4? $\qquad$ an odd number? $\qquad$ a number greater than 4? $\frac{1}{3}$ $: \quad$ Additional Practice
The number of desired outcomes is the numerator, and the number of possible outcomes is the denominator
What is the probability of rolling a dice one time and having it land on
$\qquad$
$\qquad$ an even number? $\qquad$ a number less than 5 ? $\frac{2}{3}$

CONGRUENCY. ANGLE MEASURE, PERIMETER, AREA.
SURFACE AREA \& VOLUME (LESSONS 26-28. 37. 70 \& 97)
Find the perimeters and areas. Draw a triangle that is congruent to the one below. Measure $\angle \mathrm{A}$ to the nearest degree

perimeter $=\underline{64} \mathrm{~cm}$ area $=\underline{192} \mathrm{~cm}^{2}$ perimeter $=\underline{36}$ in area $=\underline{48} \mathrm{in}^{2}$ Find the surface area and volume.

surface area $=\underline{288 \mathrm{ft}^{2}}$ volume $=324 \mathrm{ft}^{3}$ Addition al Practice
The perimeter is the total length of all the sides. Add the area of each face to find the surface area. Congruent shapes have the same shape and size. rectangle area formula: $A=\ell w$ rectangular prism volume formula: $V=\ell w h$ triangle area formula: $A=\frac{b h}{2} \quad$ cylinder volume formula: $V=\pi r^{2} h$

Find the perimeters and areas. Draw a triangle that is congruent to the one below. Measure $\angle B$ to the nearest degree.

perimeter $=46 \mathrm{~m}$ area $=94 \mathrm{~m}^{2}$ Find the surface area and volume.

surface area $=\underline{384} \mathrm{~m}^{2}$ volume $=512 \mathrm{~m}^{3}$

