IMPACT ACADEMY

MATH NEST: SUMMER EDITION

Because wise Owls don't take the summer off from thinking!

Your 8th Grade math teacher is very excited to meet you and work with you in the upcoming year!

Please use the following problems to practice the prerequisite skills needed to be most prepared for 8th grade math. Your student should work through the following pages and **SHOW ALL WORK. DO NOT USE A CALCULATOR.** There are some helpful math tips included as you work through the pages to provide reminders on different topics.

When you have completed the summer packet, you may use your IXL login to practice some additional math skills (number sense and numeracy).

Please see the list below of possible incentives completing the packet. You will turn the packet into your teacher during the first week of school. You may choose two incentives with the submission of a completed packet.

INCENTIVES:

- Free admittance to a back-to-school event
- Lunch with the principal
- Chick-Fil-A Complimentary Meal Card
- Free HW or CW assignment pass (*See your teacher for when this can be used*)
- Impact Owl Badge & Certificate of Achievement
- Entry into a raffle - For an Impact Academy Shirt

INTEGERS

Add.

1. $(-3) + (-7) =$ _____
2. $(-30) + 9 =$ _____
3. $42 + (-45) =$ _____
4. $(-55) + (-7) =$ _____
5. $3 + (-6) + 12 =$ _____
6. $(-9) + (-6) + (-15) =$ _____

Subtract.

1. $15 - (-3) =$ _____
2. $(-7) - 1 =$ _____
3. $(-14) - (-6) =$ _____
4. $3 - (-4) =$ _____
5. $(-1) - 6 - (-9) =$ _____
6. $21 - (-12) - 12 =$ _____

Multiply or divide.

1. $(-4) \bullet (-10) =$ _____
2. $86 \bullet (-6) =$ _____
3. $(-52) \div 13 =$ _____
4. $164 \div (-4) =$ _____
5. $(-5) \bullet (-13) \bullet (-4) =$ _____
6. $204 \div (-3) \bullet (-7) =$ _____

Find each absolute value.

1. $|-15| =$ _____
2. $|11 - 14| =$ _____
3. $|-5{,}187| =$ _____
4. $|(-43) \bullet (-8)| =$ _____



Challenge Problem!

Evaluate.

1. $[2 + (-4)] + 5 - [(-11) \bullet (-2)] - (-7) =$ _____

NUMBER PATTERNS, EXPRESSIONS, & EQUATIONS

Write the next three terms of the pattern.

1. 100, 91, 82, 73, ... _____, _____, _____

2. 2, 9, 16, 23, ... _____, _____, _____

3. 1, 1, 2, 3, 5, 8, ... _____, _____, _____

Solve.

1. $x - 7 = 86$

2. $7 + 3y = 22$

3. $5b = 60$

4. $\frac{f}{6} = 30$

5. $7w + 3 = 52$

6. $5x - 7 = 118$

Evaluate for the given value.

1. $4x - 5$, for $x = 7$

_____

2. $(a \div b)^2 + (a \bullet b)$, for $a = 77$ & $b = 11$

_____

3. $\frac{50 - x}{y - 3}$, for $x = 5$ & $y = 6$

_____

4. $(b - c)^2 \bullet (b + c)$, for $b = 9$ & $c = 3$

_____

Evaluate each expression.

1. $(2+1)^4 \div 9 - 4 =$ _____

2. $(5 \bullet 3 \bullet 2) - (63 \div 7) =$ _____

3. $\frac{3}{4} \bullet 4 + 6^2 \div 9 =$ _____

4. $\left[(9-7)^5 + 17\right] \div (7) =$ _____

Translate each statement into an expression or equation.

1. Five more than a number x. _____

2. A number x less seventeen. _____

3. The product of sixty and a number x is thirty. _____

Find the GCF or LCM for each.

1. The GCF of 24 & 32 is _____.

2. The LCM of 12 & 16 is _____.

3. The GCF of 18, 30, & 60 is _____.

4. The LCM of 3, 12, & 15 is _____.

Write the prime factorization of each number.

1. $54 =$ _____

2. $57 =$ _____

FRACTIONS/DECIMALS/PERCENTS

Use >, <, or = to compare each pair of numbers.

1. $\frac{7}{8}$ _____ 0.82

2. -0.63 _____ $-\frac{5}{8}$

3. $1\frac{4}{5}$ _____ $\frac{21}{12}$

4. $-3\frac{1}{4}$ _____ $-3\frac{6}{25}$

5. $\frac{15}{27}$ _____ $\frac{16}{24}$

6. $\frac{8}{25}$ _____ 0.32

Write each percent as a decimal and as a fraction/mixed number in lowest terms.

		Decimal	Fraction/Mixed Number
1.	82%	_____	_____
2.	60%	_____	_____
3.	8%	_____	_____
4.	135%	_____	_____

Order each group of numbers from least to greatest. Write your answer on the line.

1. $0.7, 0.\overline{7}, \frac{3}{4}, \frac{7}{8}$

2. $-2\frac{2}{3}, -2\frac{2}{5}, -2.1, -2.25$

_____ _____

Challenge Problem!



Complete the statement using >, <, or =.

1. 25% of 80 _____ 125% of 12

FRACTION OPERATIONS

Add, subtract, multiply, or divide. All answers must be in fraction/mixed number form.

1. $7\frac{3}{11}-4\frac{13}{33}$ = _____

2. $5\frac{9}{20}+1\frac{3}{5}$ = _____

3. $7\frac{3}{5}-\frac{4}{5}$ = _____

4. $\left(\frac{3}{8}\right)+\left(\frac{9}{20}\right)$ = _____

5. $4\bullet\frac{3}{5}$ = _____

6. $\frac{3}{8}\div\frac{7}{12}$ = _____

7. $\left(6\frac{3}{16}\right)\bullet\left(3\frac{1}{5}\right)$ = _____

8. $15\div\left(4\frac{1}{6}\right)$ = _____

DECIMAL OPERATIONS

Add, subtract, multiply, or divide. All answers must be in decimal form.

1. $0.1465 + 0.28 =$ _____

2. $13.87 - 6.8412 =$ _____

3. $(7.039) \bullet (0.04) =$ _____

4. $(4.844) \div (0.56) =$ _____

5. $11.57 - 9.283 =$ _____

6. $(1.4678) + (21.564) =$ _____

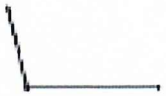
7. $(9.767) \bullet (4.089) =$ _____

8. $(37.41) \div (4.3) =$ _____

GEOMETRY & MEASUREMENT

Write your answer on the line.

1. What is the approximate measure of this angle? _____



2. What kind of angle is this? _____



3. If $\angle 1$ measures 56°, what is its complement? _____

4. If $\angle 1$ measures 56°, what is its supplement? _____

5. How many faces does this figure have? _____



6. How many vertices does this figure have? _____

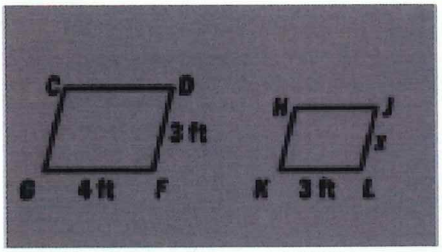


7. How many edges does this figure have? _____



In the following diagram, CDFG ~ HJLK. Use this information to find the value of x.

1. x = _____



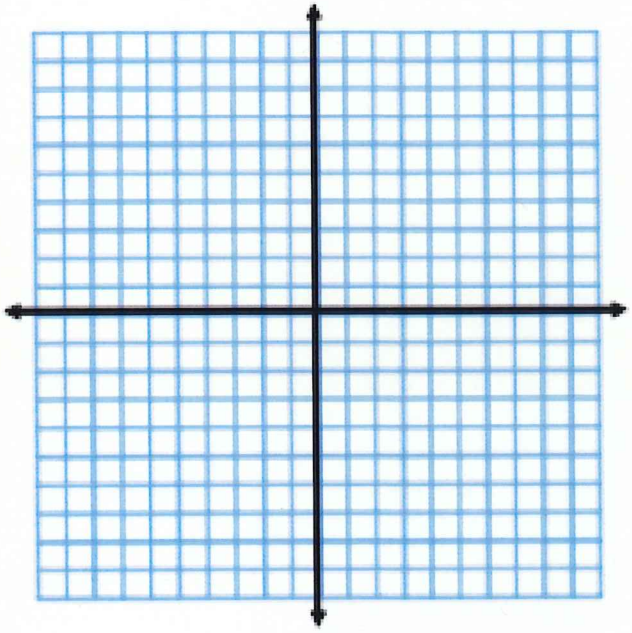
Name the quadrant or place in which each point lies.

1. (-4, -2)_____ 2. (0, -7)_____ 3. (0,0)_____

4. (6, -9)_____ 5. (3, 5)_____ 6. (8, 0)_____

Graph and label (with letters) these figures on the same plane.

1. PQRS: P(-2,4), Q(-5,4), R(-8,0), S(-2,0)
   TUVW: T(4,8), U(8,8), V(8,0), W(4,0)
   ABC: A(0,-3), B(0,-7), C(-6,-7)

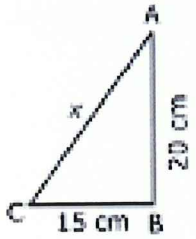




Challenge Problem!

Find the length of the missing side of this right triangle.

1.



RATIOS, PROPORTIONS, & PERCENTS

Find the unit rate.

1. $\frac{\$56}{8lbs}$ = _____

2. 7 phone calls in 2 hours = _____

Write the ratio as a fraction in simplest form.

1. 65 to 130 = _____

2. $\frac{18}{63}$ = _____

Solve each proportion by cross-multiplying.

1. $\frac{20}{x} = \frac{16}{5}$

2. $\frac{y}{22} = \frac{11}{5.5}$

3. $\frac{3.6}{3} = \frac{b}{14.4}$

Find each value.

1. 40% of 25 is what number? _____

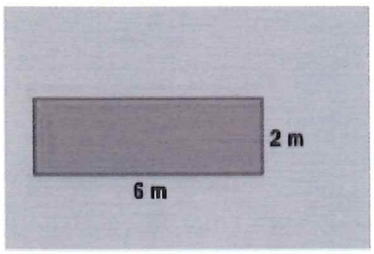
2. 18 is 75% of what number? _____

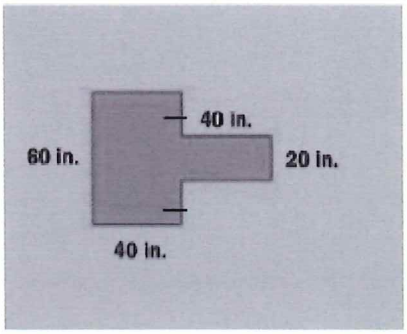
3. What percent of 600 is 180? _____

4. The cost of a meal is $35.27 and you leave an 18% tip. What is the total cost of the meal? Round to the nearest cent. _____

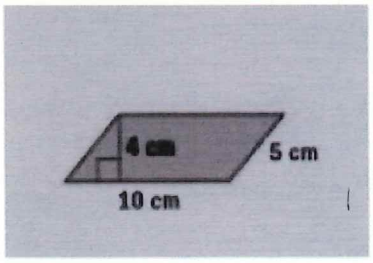
PERIMETER, AREA, & VOLUME

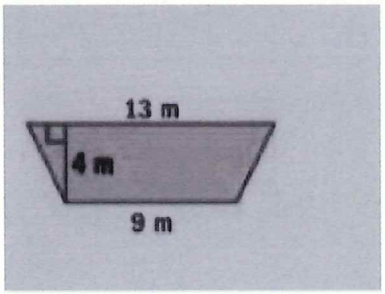
Find the perimeter of each polygon.

1. 

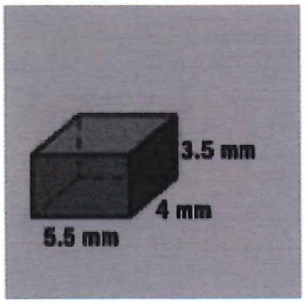
2. 

Find the area of each polygon.

1. 

2. 

Find the volume of each figure.

1. 

2. 