Algebra Summer Packet Key

Objective: Adding and subtracting with integers.

Review the following addition and subtraction rules.

- To add two numbers with the same sign, *add* their absolute values. The sum has the same sign as the numbers.
- To add two numbers with different signs, find the *difference* of their absolute values. The sum has the same sign as the number with the greater absolute value.
- Rewrite subtraction problems as addition problems by adding the opposite of the second value. To subtract a number, add its opposite. (Some students may be familiar with "add a line, change the sign.")

Objective: Multiplying and dividing integers.

Review the following multiplication and division rules:

- The product or quotient of two positive numbers is positive.
- The product or quotient of two negative numbers is positive.
- The product or quotient of a negative number and a positive number is negative.
- It is mathematically incorrect to divide by 0. When dividing by zero in arithmetic, the answer is *undefined*.

55 1) $(-5)(-11)$

-4 2) $7+(-11)$

0 3) $-15*0$

34 4) $36+12+(-14)$

0 5) $-8+15+(-24)+17$

-225 6) $(-15)(15)$

-6 7) $(-56)+24+43+(-17)$

-12 8) $19-31$

-30 9) $(3)(-5)(2)$

120 10) $5*(-3)(-8)$

-165 11) $(-11)(-5)(-3)$

13 12) $-169\div(-13)$

-14 13) $(-57)-(-43)$

400 14) $65-(-335)$

130 15) $-175-(-305)$

-177 16) $(-99)+(-77)+(-1)$

$-\frac{7}{9}$ 17) $42\div(-54)$
or $-.\overline{7}$

-40 18) $8-56+12-4$

5 19) $8+(-10)-(-7)$

-4 20) $13-18+10-9$

4 21) $\frac{-60}{-15}$

0 22) $13+(-38)-(-42)-17$

7 23) $-32+(-7)-(-40)+6$

-21 24) $4+(-20)-18-(-13)$

144 25) $(3)(-2)(6)(-4)$

-27 26) $\frac{-1080}{40}$

210 27) $(-7)(-2)(-5)(-3)$

-720 28) $(-4)(6)(-5)(-6)$

0 29) $\frac{0}{-22}$

-9 30) $54\div(-6)$

-28 31) $-84\div3$

undefined 32) $\frac{-15}{0}$

Objective: Decimal and Fraction Operations.

Review the rules for adding, subtracting, multiplying, and dividing integers. The same rules apply when adding, subtracting, multiplying, and dividing decimals and fractions.

- Remember to "line up the decimals" when adding and subtracting decimal values.
- Find common denominators and equivalent fractions when adding and subtracting.
- Multiply the numerators and multiply the denominators when multiplying fractions. If either of the multipliers are mixed numbers, change them to improper fractions.
- To divide fractions: Find the reciprocal of the *second* fraction (divisor) and then multiply by the first fraction (dividend).
- When you encounter a fraction and a decimal in the same problem, convert one or the other.
- Always simplify the answers.

For example: $\frac{14}{15}\div\frac{7}{5}=$

$\frac{14}{15}\bullet\frac{5}{7}=\frac{2}{3}$

-5 1) $2\frac{1}{2}+\left(-7\frac{1}{2}\right)$

$-9\frac{1}{2}$ 2) $-5\frac{2}{7}+\left(-4\frac{3}{14}\right)$

-2.79 3) $0.27-3.06$

4.99 4) $1.91-(-3.08)$

-21.8 5) $(-17.9)+(-3.9)$

$-.6$ 6) $-1+0.4$

$-5\frac{8}{9}$ 7) $-13\frac{5}{9}-\left(-7\frac{2}{3}\right)$

$-2\frac{1}{10}$ 8) $9\frac{2}{5}-11\frac{1}{2}$

$-.45$ 9) $(0.5)(-0.9)$

-3.65 10) $(7.3)(-0.5)$

$\frac{3}{5}$ 11) $\left(-\frac{\cancel{8}}{\cancel{15}}\right)\left(\frac{\cancel{27}}{\cancel{20}}\right)\left(-\frac{\cancel{5}}{\cancel{6}}\right)$

-3 12) $-1.2\div0.4$ $\quad -\frac{6}{5}\div\frac{2}{5} \quad -\frac{6^3}{5}\cdot\frac{5}{2_1}$

$-\frac{9}{100}$ 13) $0.36\div(-4)$ $\quad \frac{9}{25}\cdot-\frac{1}{4}$

-42 14) $-12\div\frac{2}{7}$ $\quad -\frac{12^6}{1}\cdot\frac{7}{2_1}$

$.4$ 15) $-0.36\div(-0.9)$

-16 16) $\frac{4}{5}\div\left(-\frac{1}{20}\right)$

-41.5 17) $-0.8\overline{)33.2}$

$\frac{16}{21}$ 18) $-\frac{1}{6}\left(-4\frac{4}{7}\right)$

$-\frac{7}{15}$ or $-.4\overline{6}$ 19) $3\overline{)-1.4}$

$-\frac{65}{6}$ or $-10\frac{5}{6}$ or $-10.8\overline{3}$ 20) $\left(4\frac{7}{8}\right)\left(-2\frac{2}{9}\right)$

$.32$ or $\frac{8}{25}$ 21) $\frac{-3.2}{-10}$

$\frac{7}{3}$ or $2\frac{1}{3}$ 22) $2\left(\frac{2}{3}\right)+3\left(\frac{1}{3}\right)$

-15 23) $\frac{3}{4}(13-33)$

Objective: Exponents and Square Roots

Expressions containing repeated factors can be written using exponents.

Example 1 Write $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$ using exponents.

Since 7 is used as a factor 5 times, $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 7^5$.

Example 2 Write $p \cdot p \cdot p \cdot q \cdot q$ using exponents.

Since p is used as a factor 3 times and q is used as a factor 2 times, $p \cdot p \cdot p \cdot q \cdot q = p^3 \cdot q^2$.

The square root of a number is one of two equal factors. The radical sign $\sqrt{\ }$ is used to indicate the positive square root.

Examples Find each square root.

1. $\sqrt{1}$ — Since $1 \cdot 1 = 1$, $\sqrt{1} = 1$.
2. $-\sqrt{16}$ — Since $4 \cdot 4 = 16$, $-\sqrt{16} = -4$.
3. $\sqrt{0.25}$ — Since $0.5 \cdot 0.5 = 0.25$, $\sqrt{0.25} = 0.5$.
4. $\sqrt{\frac{25}{36}}$ — Since $\frac{5}{6} \cdot \frac{5}{6} = \frac{25}{36}$, $\sqrt{\frac{25}{36}} = \frac{5}{6}$.

Example 5 Estimate $\sqrt{79.3}$ to the nearest whole number.

- The first perfect square less than 79.3 is 64.
- The first perfect square greater than 79.3 is 81.

$64 < 79.3 < 81$ Write an inequality.

$8^2 < 79.3 < 9^2$ $64 = 8^2$ and $81 = 9^2$

$8 < \sqrt{79.3} < 9$ Take the square root of each number.

So, $\sqrt{79.3}$ is between 8 and 9. Since 79.3 is closer to 81 than 64, the best whole number estimate for $\sqrt{79.3}$ is 9.

Write each expression using exponents.

8^2a or $64a$ 1. $8 \bullet 8 \bullet a$

$3^2 \cdot 5 \cdot q^3$ or $45q^3$ 2. $5 \bullet q \bullet 3 \bullet q \bullet q \bullet 3$

$3 \cdot 7^2 \cdot 9^2 \cdot a^3 \cdot b^3$ 3. $3 \bullet 7 \bullet a \bullet 9 \bullet b \bullet a \bullet 7 \bullet b \bullet 9 \bullet b \bullet a$

Evaluate each expression.

8 4. 2^3

432 5. $3^3 \bullet 4^2$

$\frac{3}{100}$ 6. $\frac{3^3 \bullet 10^2}{3^2 \bullet 10^4}$

1 7. $\frac{4^6 \bullet 3^5 \bullet 2^2}{4^6 \bullet 3^5 \bullet 2^2}$

$\frac{1}{2000}$ 8. $(0.2)^3 \bullet \left(\frac{1}{2}\right)^4$

Find each square root.

9 9. $\sqrt{81}$

±6 10. $\pm\sqrt{36}$

$\frac{8}{15}$ 11. $\sqrt{\frac{64}{225}}$

±1.2 12. $\pm\sqrt{1.44}$

$-\frac{4}{5}$ 13. $-\sqrt{\frac{16}{25}}$

2 14. $4 \bullet \sqrt{0.25}$

Estimate each square root to the nearest whole number.

7 15. $\sqrt{44}$

4 16. $\sqrt{15.6}$

9 17. $\sqrt{85.1}$

14 18. $\sqrt{197}$

Order from least to greatest:
$\sqrt{91}, 7, \sqrt{38}, 5$

$5, \sqrt{38}, 7, \sqrt{91}$

Objective: Using the order of operations.

Order of Operations:

1. Perform any operations inside grouping symbols (parentheses.)
2. Simplify any term with exponents.
3. Multiply and divide in order from left to right.
4. Add and subtract in order from left to right.

Many students use PEMDAS to help them remember the order to perform operations.

Parentheses
Exponents
Multiply and
Divide
Add and
Subtract.

never round unless directed - leave answers as fractions

Simplify the following expressions.

-6 1) $15-7\cdot3$

53 2) $7*8-5+6\div3$

-28 3) $(3-7)4-12$

-5 4) $12\div4+2\cdot(-7)-18\div(-3)$

0 5) 4^2-2^4

294 6) $6(5+12\div6)^2$

$\frac{17}{24}$ 7) $\left(\frac{3}{4}+\frac{2}{3}\right)\cdot\frac{1}{2}$

$\frac{11}{18}$ 8) $\frac{1}{6}+\left(\frac{2}{3}\right)^2$

$-\frac{1}{20}$ 9) $\frac{7}{10}-\frac{4}{5}\div\left(\frac{2}{3}+\frac{2}{5}\right)$

-135 10) $-5*3^3$

-18 11) $(7+2)(-3)+9$

3 12) $18\div(9-15\div5)$

-5.4 13) $-6.2+0.72\div0.9$

-157 14) $35-3(6-2)^3$

3 15) $(49-10)\div(52/4)$

$\frac{3}{4}$ 16) $\frac{3}{4}\div\frac{2}{3}-\frac{3}{8}$

Insert grouping symbols "( )" to make the equation true.

17) $(8+2^3)\div4=4$

18) $6+7\cdot(2+5)=55$

Objective: Evaluate Expressions

To evaluate, or find the value of, an algebraic expression, first replace the variable or variables with the known values to produce a numerical expression, one with only numbers and operations. Then find the value of the expression using the order of operations. Be sure to substitute into parentheses!

Example 1 Evaluate the expression $3x^2 - 4y$ if $x = 3$ and $y = 2$.

$3x^2 - 4y$	$= 3(3)^2 - 4(2)$	Replace x with 3 and y with 2.
	$= 3(9) - 4(2)$	Evaluate the power first.
	$= 27 - 8$	Do all multiplications.
	$= 19$	Subtract.

Evaluate each expression if $w = 2, x = 6, y = 4$, and $z = 5$.

16 1) $2x+y$

11 2) $3z-2w$

47 3) $9+7x-y$

72 4) wx^2

144 5) $(wx)^2$

3 6) $\frac{x^2-3}{2z+1}$

5 7) $\frac{wz^2}{y+6}$

Evaluate each expression if $a=4$, $b=3$, and $c=6$.

18 8) $a(3+b)-c$

1 9) $2(ab-9)\div c$

26 10) $3b^2+2b-7$

-5 11) $\frac{a^2+a}{bc+(b-1)}-c$

-15 12) $\frac{ab+bc}{2b-8}$

Evaluate each expression if $p=5$ and $q=12$.

2 13) $\frac{4q}{q+2(p+1)}$

10°C 14) When a temperature in degrees Fahrenheit F is known, the expression $\frac{5F-160}{9}$ can be used to find the temperature in degrees Celsius, C. If a thermometer shows that the temperature is 50°F, what is the temperature in degrees Celsius?

\$32 15) The cost of renting a car for a day is given by the expression $\frac{270+m}{10}$, where m is he number of miles driven. How much would it cost to rent a car for one day and drive 50 miles?

24 16) Philip is able to spin his yo-yo along a circular path. The yo-yo is kept in motion by a force which can be determined by the expression $\frac{mv^2}{r}$ (m = mass, v = velocity, and r = radius.) Evaluate the expression when the $m = 12$, $v = 4$ and $r = 8$.

Objective: Solve One- and Two-Step Equations

You can use the following properties to solve addition and subtraction equations.

- *Addition Property of Equality* — If you add the same number to each side of an equation, the two sides remain equal.
- *Subtraction Property of Equality* — If you subtract the same number from each side of an equation, the two sides remain equal.

You can use the following properties to solve multiplication and division equations.

- *Multiplication Property of Equality* — If you multiply each side of an equation by the same number, the two sides remain equal.
- *Division Property of Equality* — If you divide each side of an equation by the same nonzero number, the two sides remain equal.

A **two-step equation** contains two operations. To solve a two-step equation, undo each operation in reverse order.

Vertical Method

$-2a + 6 = 14$	Write the equation.
$-6 = -6$	Subtract 6 from each side.
$-2a = 8$	Simplify.
$\frac{-2a}{-2} = \frac{8}{-2}$	Divide each side by -2.
$a = -4$	Simplify.

Check	$-2a + 6 = 14$	Write the equation.
	$-2(-4) + 6 \stackrel{?}{=} 14$	Replace a with -4 to see if the sentence is true.
	$14 = 14$ ✓	The sentence is true.

The solution is -4.

53° 1. Two angles are complementary angles. If one angle measures 37°, write and solve an equation to find the missing angle measure.

63° 2. On one day in Fairfield, Montana, the temperature dropped 84°F from noon to midnight. If the temperature at midnight was -21°F, write and solve an equation to determine the temperature at noon that day.

Solve and check. Show all steps – even if you can do the calculations in your head. Number and show your work on notebook or graph paper. Staple your work to this packet.

3. $y+12=-3$

$y=-15$

4. $g-2=-13$

$g=-11$

5. $9b=-72$

$b=-8$

6. $-35=5n$

$-7=n$

7. $-8=\frac{c}{12}$

$-96=c$

8. $\frac{10}{x}=-5$

$x=-2$

9. $4x=44$

$x=11$

10. $34=-4j$

$-8.5=j$

11. $2h+9=21$

$h=6$

12. $-17=6p-5$

$-2=p$

13. $13=\frac{g}{3}+4$

$27=9$

14. $5+\frac{y}{8}=-3$

$y=-64$

15. $15-\frac{w}{4}=28$

$w=-52$

16. $-\frac{1}{2}x-7=-11$

$x=8$

Equations

① x = missing angle

$x+37=90$

$\underline{-37\quad -37}$

$x=53$

$53°$

② x = temp.@noon

$x-84=-21$

$\underline{+84\quad +84}$

$x=63°$

③ $y+12=-3$

$\underline{-12\quad -12}$

$y=-15$

④ $g-2=-13$

$\underline{+2\quad +2}$

$g=-11$

⑤ $\frac{9b}{9}=\frac{-72}{9}$

$b=-8$

⑥ $\frac{-35}{5}=\frac{5n}{5}$

$-7=n$

⑦ $12(-8)=\left(\frac{c}{12}\right)12$

$-96=c$

⑧ $\frac{10}{x}=-5$

$\frac{-5x}{-5}=\frac{10}{-5}$

$x=-2$

⑨ $\frac{4x}{4}=\frac{44}{4}$

$x=11$

⑩ $\frac{34}{-4}=\frac{-4j}{-4}$

$-8.5=j$

⑪ $2h+9=21$

$\underline{-9\quad -9}$

$\frac{2h}{2}=\frac{12}{2}$

$h=6$

Equations - pg. 2

(12) $-17 = 6p - 5$

$+5 \qquad +5$

$-12 = 6p$

$\frac{-12}{6} = \frac{6p}{6}$

$-2 = p$

(13) $13 = \frac{g}{3} + 4$

$-4 \qquad -4$

$3(9) = (\frac{g}{3})3$

$27 = g$

(14) $5 + \frac{y}{8} = -3$

$-5 \qquad -5$

$8(\frac{y}{8}) = (-8)8$

$y = -64$

(15) $15 - \frac{w}{4} = 28$

$-15 \qquad -15$

$-4(-\frac{w}{4}) = (13)-4$

$w = -52$

(16) $-\frac{1}{2}x - 7 = -11$

$+7 \qquad +7$

$-2(-\frac{1}{2}x) = (-4)-2$

$x = 8$

Objective: Probability

You can collect data through observations or experiments and use the data to state the **experimental probability** as a ratio of favorable outcomes to the total number of trials.

$P(\text{event}) = \dfrac{\text{favorable outcomes}}{\text{number of trials}}$

Theoretical probability is the ratio of the number of ways the event can occur to the total number of possibilities in the sample space.

$P(\text{event}) = \dfrac{\text{favorable outcomes}}{\text{\# of possible outcomes}}$

Two events are **independent** when the outcome of the second is not affected by the outcome of the first. Examples of independent events: flipping coins; spinning spinners; choosing an item from a bag and *replacing* it before choosing another item.
If A and B are independent events, $P(\text{A and B}) = P(\text{A}) \times P(\text{B})$.

Two events are **dependent** when the outcome of the second is affected by the outcome of the first. Examples of dependent events: choosing an item from a bag and *not replacing* it before choosing a second item from the same bag; selecting a candy, eating it, and selecting another candy.
If A and B are dependent events, $P(\text{A, then B}) = P(\text{A}) \times P(\text{B after A})$.

Use the following situation for problems 7-16.

Suppose you have a drawer of socks containing 15 red, 5 white, 25 green, 20 black, 25 purple, and 10 blue socks. You draw a sock, record its color, and put it back. You do this 100 times with these results: 12 red, 9 white, 27 green, 17 black, 22 purple, and 13 blue. Write each probability as a fraction in simplest form.

	1. P(red)	2. P(white)	3. P(green)	4. P(black)	5. P(purple)	6. P(blue)
Experimental probability	$\frac{3}{25}$	$\frac{9}{100}$	$\frac{27}{100}$	$\frac{17}{100}$	$\frac{22}{100} = \frac{11}{50}$	$\frac{13}{100}$
Theoretical probability	$\frac{15}{100} = \boxed{\frac{3}{20}}$	$\frac{5}{100} = \boxed{\frac{1}{20}}$	$\frac{25}{100} = \boxed{\frac{1}{4}}$	$\frac{20}{100} = \boxed{\frac{1}{5}}$	$\boxed{\frac{1}{4}}$	$\boxed{\frac{1}{10}}$

dep. 7) Suppose you take out a sock, put it on your foot, and take out another sock. Are these events independent or dependent?

$\frac{1}{66}$ 8) What is the probability of drawing a red, putting it on, and then drawing a blue sock? $\frac{3}{20} \cdot \frac{10}{99}$ 33

Express each theoretical probability as a fraction in simplest form. ind.

$\frac{3}{200}$ 9) P(red and blue) $\frac{3}{20} \cdot \frac{1}{10}$

$\frac{3}{400}$ 10) P(red, then white) $\frac{3}{20} \cdot \frac{1}{20}$

0 11) P(green and orange)

$\frac{3}{80}$ 12) P(red, then green) $\frac{3}{20} \cdot \frac{1}{4}$

Express each theoretical probability as a percent. Round to the nearest tenth, if necessary.

1.5% 13) P(red and blue)

.8% 14) P(red, then white)

0% 15) P(green and orange)

3.8% 16) P(red, then green)

Objective: Statistics

The mean, median, and mode are **measures of central tendency.**

- To calculate the mean of a set of data, find the average.
- To find the median of a set of data, order the data and find the middle number.
- The mode is the data that occurs most often. It is possible to have no mode or more than one mode.

The range and interquartile range are **measures of variation.**

- The range is the *difference* between the highest and lowest values in the data set.

The lower quartile or LQ is the median of the lower half of a set of data. The upper quartile or UQ is the median of the upper half of a set of data. The interquartile range is the difference between the upper quartile and the lower quartile.

Example 1 **Find the range, median, upper and lower quartiles, and interquartile range for the following set of data.**
13, 20, 18, 12, 21, 2, 18, 17, 15, 10, 14

The greatest number in the data set is 21. The least number is 2. The range is 21 − 2 or 19.

To find the quartiles, arrange the numbers in order from least to greatest.
2 10 12 13 14 15 17 18 18 20 21

The median is 15. The numbers below 15 are 2, 10, 12, 13, and 14. The median of the numbers below 15 is 12, so the lower quartile is 12. The numbers above 15 are 17, 18, 18, 20, and 21. The median of the numbers above 15 is 18, so the upper quartile is 18. The interquartile range is 18 − 12 or 6.

Find the mean, median, mode, and range for the set of data: ~~3~~, ~~8~~, ~~2~~, ~~9~~, ~~10~~, ~~4~~, 6, 12, 15 2, 3, 4, 6, 8, 9, 10, 12, 15

$7\frac{2}{3}$ 1) mean do not round unless directed to none 3) mode

8 2) median 13 4) range

Find the range, median, upper and lower quartiles, and interquartile range for each set of data.

5. ~~14~~, 16, ~~18~~, 24, ~~19~~, ~~15~~, ~~13~~ 13, 14, 15, 16, 18, 19, 24

range: 11
median: 16
lower Q: 14
upper quartile: 19
interquartile range: 5

6. ~~91~~, ~~92~~, ~~88~~, ~~89~~, ~~93~~, ~~95~~, ~~65~~, ~~85~~, ~~91~~ 65, 85, 88, 89, 91, 91, 92, 93, 95

range: 30
median: 91
lower Q: 86.5
upper Q: 92.5
interquartile range: 6

Which measure of central tendency would you use to find:

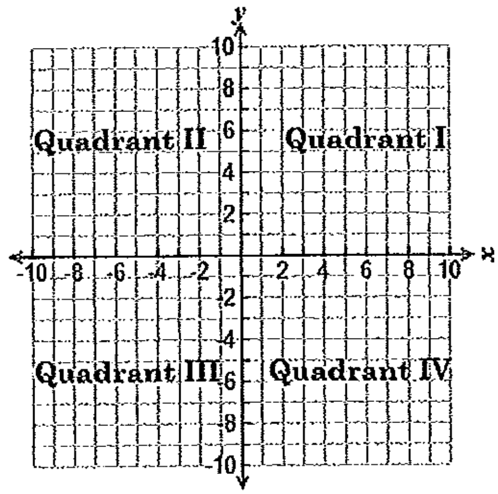
median 7) the middle-most salary of teachers working in Fort Bend ISD?

mode 8) the radio station your friends like the best?

mean 9) your favorite baseball player's batting average?

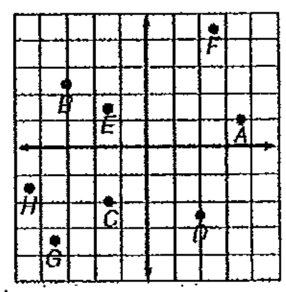
Objective: Geometry, The Coordinate Plane

The coordinate plane is used to locate points. The horizontal number line is the *x*-axis. The vertical number line is the *y*-axis. Their intersection is the **origin**. Points are located using **ordered pairs**. The first number in an ordered pair is the **x-coordinate**; the second number is the **y-coordinate**. The coordinate plane is separated into four sections called **quadrants**.



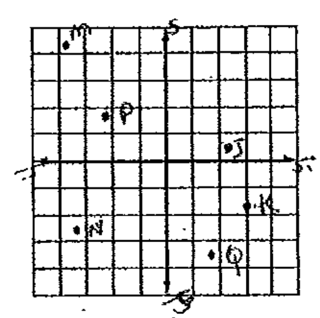
Name the ordered pair for each point. Then identify the Quadrant in which it is located.

1. A (3.5, 1), I
2. B (-3, 2.5), II
3. C (-1.5, -2), III
4. D (2, -2.5), IV
5. E (-1.5, 1.5), II
6. F (2.5, 4.5), I
7. G (-3.5, -3.5), III
8. H (-4.5, -1.5), III



Graph and label each point.

9. $J\left(2\frac{1}{4}, \frac{1}{2}\right)$
10. $K\left(3, -1\frac{2}{3}\right)$
11. $M\left(-3\frac{3}{4}, 4\frac{1}{4}\right)$
12. $N\left(-3\frac{2}{5}, -2\frac{3}{5}\right)$
13. $P\left(-2.1, 1.8\right)$
14. $Q\left(1.75, -3.5\right)$



Objective: Geometry, Transformations

A transformation is a mapping of a geometric figure. Transformations include dilations, reflections, and translations. (Rotations will be taught in high school geometry classes.) The original figure (before the transformation is performed) is called the *pre-image*. The new figure is called the *image*. If the vertex of the pre-image is point A, the vertex of the image is called A' (read A prime.)

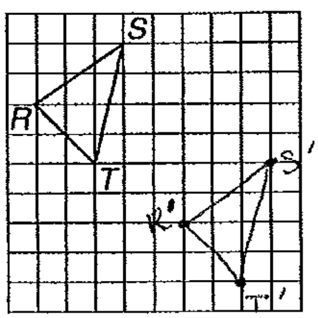
Translations When a figure is translated, every point is moved the same distance and in the same direction. The translated image is congruent to the pre-image and has the same orientation. A translation is sometimes called a slide because it looks like you simply slide the pre-image over to create the image.

Reflections To perform a reflection: For each vertex, count the number of units between the vertex and the line of symmetry. Count the same number of units between the vertex and the line of symmetry but on the other side of the line of symmetry and mark the new points.

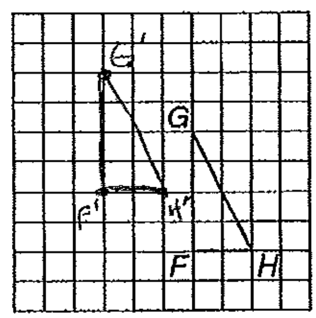
Dilations To perform a dilation, multiply each x and y value of each point by the scale factor. If the image is larger than the pre-image, the dilation is called an *enlargement*. If the image is smaller than the pre-image, the dilation is called a *reduction*.

Draw the image of the figure after the indicated translation.

1. 5 units right and 4 units down

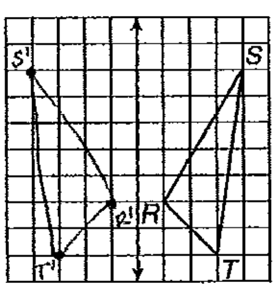


2. 3 units left and 2 units up

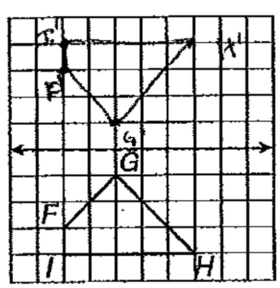


Draw the image of the figure after a reflection over the given line.

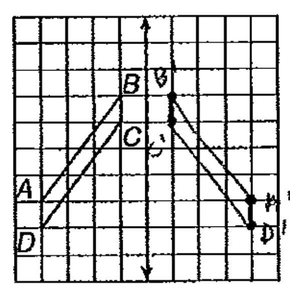
1.



2.

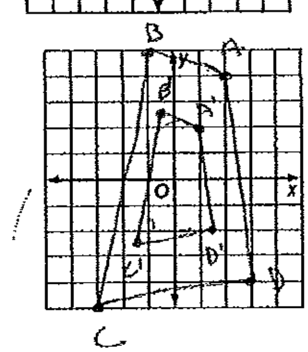


3.



1. Polygon $ABCD$ has vertices $A(2, 4)$, $B(-1, 5)$, $C(-3, -5)$, and $D(3, -4)$. Find the coordinates of its image after a dilation with a scale factor of $\frac{1}{2}$. Then graph polygon $ABCD$ and its dilation.

A' (1,2)
B' (-.5, 2.5)
C' (-1.5, -2.5)
D' (1.5, -2)



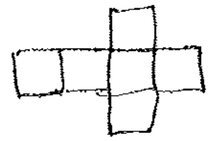
Objective: Geometry and Measurement

A formula chart can be found at the following link on pages 9 and 10.
http://ritter.tea.state.tx.us/student.assessment/resources/guides/study/G8MathE-SG.pdf

Sketch the net of each 3-D figure.

1) Cube

1



2

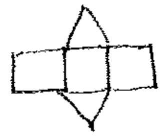
2) square pyramid

3) cylinder

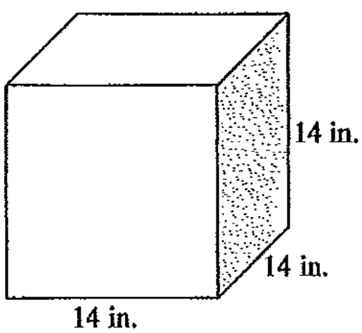
3

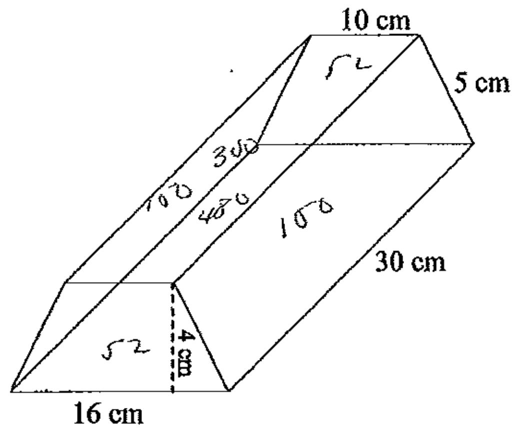
4) triangular prism

4



Find the surface area and volume for each figure.





$1176\ in^2$ 5) surface area

$2744\ in^3$ 6) volume

$1184\ cm^2$ 7) surface area

$1560\ cm^3$ 8) volume

$6468\ ft^3$ 9) What is the volume of a cylinder with radius of 7 feet and height of 42 feet? (Use $\pi = \frac{22}{7}$) $V = \pi r^2 h$ $V = \frac{22}{\cancel{7}}\left(\frac{\cancel{7}}{1}\right)\left(\frac{7}{1}\right)\left(\frac{42}{1}\right)$

Omit 10) Find the surface area of a cone with $d = 8$ feet and $l = 14$ feet. (Use $\pi = 3.14$)
$r = 4\ ft$

$3\ cm^3$ 11) Find the volume of a square pyramid. The edge of the square is 1.5 cm, and the height of the pyramid is 4 cm. $V = \frac{1}{3}Bh$ $B = 1.5^2$
$V = \frac{1}{3}(2.25)(4)$ $B = 2.25$

12) Explain the difference between total surface area and lateral surface area.

- total surface area includes the areas of the faces + base(s)
- lateral surface area includes only the area of the faces.