FOR STUDENTS ENTERING GRADE 7

Dear Parents and Students,

Attached, please find this year's summer practice packet for math. These packets will be due to the homeroom or mathematics teacher on the first day of school and will count as a grade for the first trimester. Please see rubric below for grading details. As you will see on the rubric, in order to receive the full 30 points, all problems must be complete, neat and organized, with detailed work shown for each problem (where applicable). Thank you in advance for your focused effort on this year's summer math packet. It is our hope that completing the math packet will reinforce the skills taught this year. We hope you enjoy a fantastic summer and look forward to working with you again this fall.

Sincerely,

Dawn Parker

Dawn Parker

Summer Math Packet Rubric

Name: _____

A. All problems in the packet are complete.

Points: 10 8 6 4 2

B. Detailed work process is shown for each problem (use extra paper as needed).

Points: 10 8 6 4 2

C. Work is neat and organized.

Points: 5 4 3 2 1

D. Summer Practice Packet is handed in on time (the first day of school). One point will be deducted for e ach day the assignment is late.

Points: 5 4 3 2 1

Total Points Possible: 30 Points Earned: _____

CONCEPT REMINDERS

A ratio is a comparison between two quantities. It can be written three ways: a to b, a : b, or a/b.

Equivalent ratios have the same value when simplified.

A unit rate compares a quantity to one unit. Example: 60 miles in 2 hours is a unit rate of 30 miles per hour.

Use tables or double number lines to find equivalent ratios or unit rates.

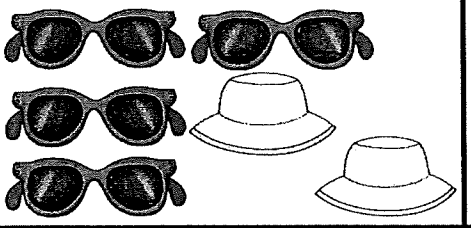
RATIOS PRACTICE

1. Simplify the following ratio 6:8

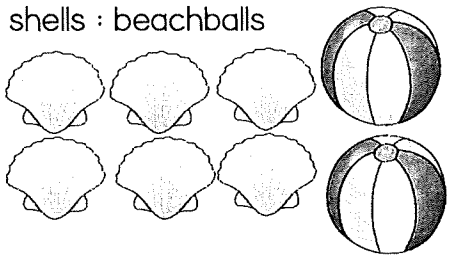
2. Write the ratio in three different ways: 5 apples to 3 oranges

3. Are the following ratios equivalent? 4 : 6 and 6 : 9

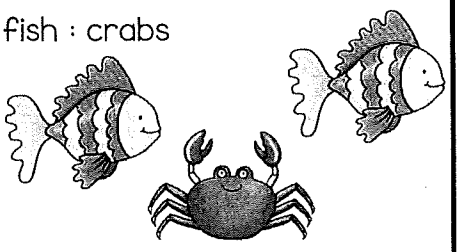
4. Write the ratio of sunglasses : hats



5. Write the ratio of shells : beachballs

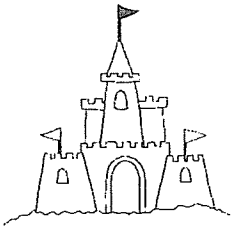


6. Write the ratio of fish : crabs



7. Complete the ratio table: For every sandcastle Julia builds, she uses 12 seashells

Seashells	12	24		48
Sandcastles	1		3	



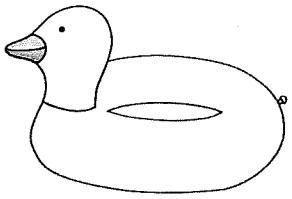
8. 12 out of 18 students passed the spelling test. What is the ratio of students that passed the test to the students that did not pass?

9. A recipe uses 2 cups of flour for every 3 cups of sugar. How much flour is needed for 9 cups of sugar?

10. A bag contains 4 red marbles, 4 green marbles, and 6 white marbles. What is the ratio of white marbles to the total number of marbles in the bag?

Summer

UNIT RATES PRACTICE



1. We paid $65 for 5 books, which is a rate of $___ per book	2. A tire store takes 10 weeks to sell 120 tires. What is the rate sold per week?	3. Sue earned $45 for baking 3 cakes. What is the rate earned per cake baked?
4. A store sells 2 pounds of fruit for $13, which is a rate of $___ per pound	5. A runner ran 44 miles in four days. What is the rate he ran per day?	6. A baker worked 10 hours and made $170, which is a rate of $___ per hour
7. A bouquet of 7 flowers sold for $56, which is a rate of $___ per flower	8. Mike sold three hamburgers and made $15, which is a rate of $___ per hamburger	9. A printer took 5 minutes to print 25 pages. What is the rate of pages per minute?
10. Ben used 20 cups of flour to bake 5 cakes. How many cups did he use per cake?	11. It cost $42 for 6 movie tickets, which is a rate of $___ per ticket	12. Amy can run 3 miles in 30 minutes. If she continues at the same rate, how many miles can she run in 2 hours?

CONCEPT REMINDERS

Fractions, decimals, and percents all represent parts of a whole.

To convert a fraction to a decimal: divide the numerator by the denominator.

To convert a decimal to a percent: multiply by 100.

To convert a percent to a decimal: divide by 100.

To convert a percent to a fraction: write it over 100 and simplify.

When adding or subtracting fractions, find a common denominator.

When multiplying fractions: multiply the numerators, then the denominators.

When dividing fractions: multiply by the reciprocal of the second fraction.

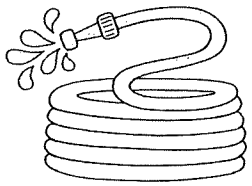
Line up decimal points for addition and subtraction.

For multiplying decimals, ignore the decimal point, multiply, then place the decimal back in.

For dividing decimals, move the decimal in the divisor to make it a whole number and move the decimal in the dividend the same number of places.

ADDING & SUBTRACTING FRACTIONS PRACTICE

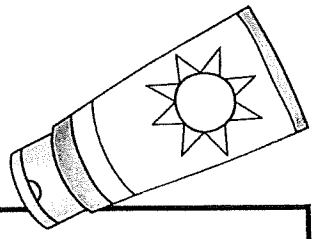
1. $\frac{1}{3}+\frac{1}{6}=$	2. $\frac{2}{3}+\frac{1}{9}=$	3. $\frac{1}{4}+\frac{3}{8}=$
4. $\frac{1}{5}+\frac{3}{10}=$	5. $\frac{3}{8}+\frac{5}{16}=$	6. $\frac{2}{5}+\frac{1}{2}=$
7. $\frac{9}{10}-\frac{4}{5}=$	8. $\frac{5}{6}-\frac{3}{8}=$	9. $\frac{4}{5}-\frac{7}{10}=$
10. $\frac{5}{6}-\frac{3}{4}=$	11. $\frac{3}{5}+\frac{2}{8}=$	12. $\frac{3}{4}+\frac{2}{9}=$



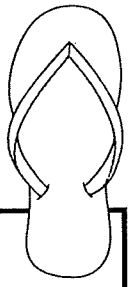
MULTIPLYING FRACTIONS PRACTICE

1. $\frac{3}{4} \times \frac{8}{9} =$	2. $4\frac{5}{6} \times 7 =$	3. $Find\ \frac{3}{4}\ of\ 16$
4. $Find\ \frac{2}{5}\ of\ 15$	5. $4\frac{3}{4} \times 2\frac{1}{2} =$	6. $\frac{1}{2} \times \frac{2}{5} =$
7. $6 \times \frac{1}{2} =$	8. $12 \times \frac{5}{6} =$	9. $\frac{12}{15} \times \frac{2}{3} =$
10. $Find\ \frac{1}{2}\ of\ 32$	11. $Find\ \frac{1}{6}\ of\ 66$	12. $2\frac{2}{3} \times 1\frac{1}{5} =$

DIVIDING FRACTIONS PRACTICE

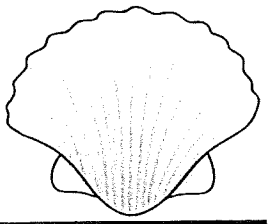


1. $\frac{3}{4} \div \frac{2}{5} =$	2. $3\frac{1}{6} \div 2 =$	3. $\frac{1}{7} \div \frac{1}{8} =$
4. $2\frac{1}{2} \div 4\frac{1}{2} =$	5. $4\frac{3}{4} \div 2 =$	6. $\frac{1}{2} \div \frac{2}{5} =$
7. $6 \div \frac{1}{2} =$	8. $\frac{1}{12} \div \frac{2}{7} =$	9. $\frac{12}{15} \div \frac{2}{3} =$
10. $3\frac{1}{4} \div \frac{1}{2} =$	11. $\frac{4}{5} \div 2 =$	12. $2\frac{2}{3} \div 1\frac{1}{5} =$



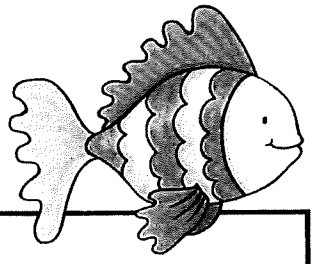
ADDING & SUBTRACTING DECIMALS PRACTICE

1. 23.5 + 13.72 =	2. 18.4 – 9.2 =	3. 2 + 5.4 + 1.3 =
4. 124.94 + 2.87 =	5. 9.572 – 3.671 =	6. 15 – 9.09 =
7. $12.34 + $2.50 =	8. $14 + $6.30 + $2.75 =	9. $50 - $35.50 =
10. Find the sum of 12.7 and 42.8	11. Find the difference of 48.06 and 2.97	12. Find the sum of 9.2, 7.65, and 8.12



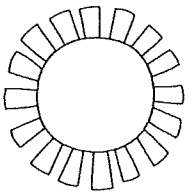
MULTIPLYING DECIMALS PRACTICE

1. 2.6 x 4.2 =	2. 12.05 x 5 =	3. 42.7 x 2.9 =
4. 88.25 x 7 =	5. $13.25 x 5 =	6. 7.06 x 2.04 =
7. 92.16 x 7.6 =	8. 52 x 14.27 =	9. 8 x $12.70 =
10. 16.007 x 2.05 =	11. 39.3 x 6.5 =	12. 83.5 x 16.02 =



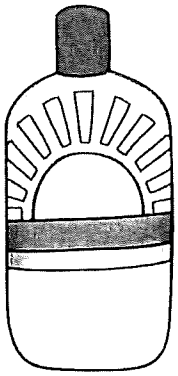
DIVIDING DECIMALS PRACTICE

1. $4.2 \div 0.6 =$	2. $7.5 \div 1.5 =$	3. $6.3 \div 0.9 =$
4. $0.48 \div 0.6 =$	5. $12.6 \div 0.3 =$	6. $3.25 \div 0.5 =$
7. $5.04 \div 0.4 =$	8. $8.75 \div 0.25 =$	9. $8 \div 0.5 =$
10. $10 \div 0.25 =$	11. $10.5 \div 1.75 =$	12. $5 \div 0.35 =$



FRACTION, DECIMAL, PERCENT CONVERSIONS

FRACTION	DECIMAL	PERCENTAGE
$\frac{1}{2}$	0.5	50%
$\frac{47}{100}$		47%
	0.3	
		25%
$\frac{3}{4}$		
	0.2	
	0.8	
		70%
		$10\frac{1}{2}\%$
$\frac{2}{5}$		
	0.09	
	0.11	
		200%
$\frac{2}{25}$		



CONCEPT REMINDERS

Integers include positive numbers, negative numbers, and zero.

Rational numbers are any numbers that can be written as a fraction (includes integers, decimals, and fractions).

On a number line, numbers to the right are greater than numbers to the left.

Absolute value is the distance a number is from zero (always positive).

Adding integers: same signs → add and keep the sign; different signs → subtract and take the sign of the number with the larger absolute value.

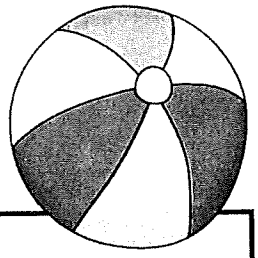
Subtracting integers: keep the first number, change the subtraction to addition, and change the sign of the second number.

Multiplying and dividing integers:

- Same signs → positive result
- Different signs → negative result

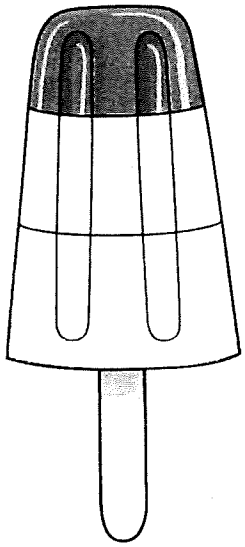
INTEGERS & RATIONAL NUMBERS PRACTICE

1. Plot on a number line: -4, 0, 2, -1, 5 0	2. Which is greater? a) -2 or -5 b) -1 or 0 c) -6 or -3	3. Absolute value: a) |-8| = __ b) |7| = __ c) |-1| = __
4. Order from least to greatest: -7, 0, -2, 4, 1	5. Plot on a number line: -6, -3, 0, 1, 4 0	6. Which is greater? a) -9 or -4 b) 3 or -3 c) 0 or -5
7. Absolute value: a) |-10| = __ b) |2| = __ c) |-7| = __	8. Order from least to greatest: 3, -1, -4, 0, 2	9. Plot on a number line: -2, 1, -5, 3, 0 0
10. Which is greater? a) -8 or -1 b) -2 or 5 c) -4 or -6	11. Absolute value: a) |-2| = __ b) |6| = __ c) |-3| = __	12. Order from least to greatest: -9, -5, 0, -3, 2



ADDING & SUBTRACTING INTEGERS PRACTICE

1. $-3 + 7 =$	2. $5 - 9 =$	3. $-6 - 4 =$
4. $12 + (-5) =$	5. $-8 + 3 =$	6. $10 - (-2) =$
7. $-15 + 9 =$	8. $-7 - 6 =$	9. $4 + (-11) =$
10. $-2 + 10 =$	11. $6 - 13 =$	12. $-5 - (-8) =$



CONCEPT REMINDERS

An expression is a math phrase that can include numbers, variables, and operations (but no equals sign).

An equation is a statement that two expressions are equal (it has an equals sign).

To evaluate an expression, substitute the value of the variable and follow the order of operations.

PEMDAS is used for order of operations: Parentheses, Exponents, Multiplication & Division (left to right), Addition & Subtraction (left to right).

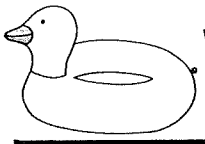
In one-step equations, use the inverse operation to isolate the variable.

In inequalities, the solution is often shown as a number line or described in words.

ORDER OF OPERATIONS PRACTICE

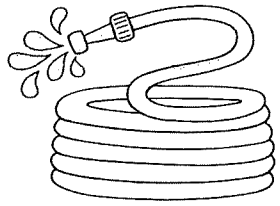
1. $5 + (6 \times 2) =$	2. $18 \div 3 + 7 =$	3. $5^2 - 8 \div 4 + 2 \times 9 =$
4. $4 - 9 + (7 \times 10) \times 2 + 5 =$	5. $55 - 9 \times (6 - 3) + 50 =$	6. $7 \times 12 \div 2 \times 9 =$
7. $6 \times 4 + 1 + 8 \div 4 =$	8. $(5 - 2 \times 3 + 4) \times 2 + 1 =$	9. $(16 - 5) \times (12 \div 3) - 4 =$
10. $(2 + 6 \div 3) - 2 \times 5 =$	11. $2 \times 3 + 4 \times 5 =$	12. $(15 \div 5 + 4) \times 2 \times 2 =$

Summer



WRITING & EVALUATING EXPRESSIONS PRACTICE

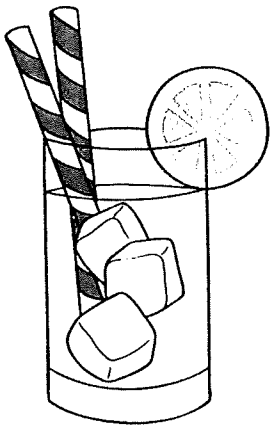
1. Write an expression: 5 more than a number x	2. Evaluate 3x when x = 6	3. Write an expression: 2 less than a number y
4. Evaluate 4y + 1 when y = 3	5. Write an expression: a number n divided by 4	6. Evaluate 7n - 5 when n = 2
7. Write an expression: 3 times the sum of a and 2	8. Evaluate (m + 3) × 2 when m = 4	9. Write an expression: half of a number k
10. Evaluate 10 - r when r = 3	11. Write an expression: the product of 6 and t, increased by 4	12. Evaluate 5p ÷ 2 when p = 8



ONE-STEP EQUATIONS & INEQUALITIES

Solve each equation or inequality. Show your work.

1. $x + 6 = 10$	2. $y - 4 = 7$	3. $3z = 15$
4. $a \div 2 = 5$	5. $m - 9 = 3$	6. $b + 7 = 13$
7. $n \div 4 = 6$	8. $5k = 30$	9. $r - 2 < 5$
10. $t + 3 \geq 9$	11. $w \div 3 \leq 4$	12. $4d > 12$



CONCEPT REMINDERS

Area is the space inside a 2D shape. Common formulas:

- Rectangle: $A = l \times w$
- Triangle: $A = 1/2 \times b \times h$
- Parallelogram: $A = b \times h$
- Trapezoid: $A = 1/2 \times (b_1 + b_2) \times h$

Surface area is the total area covering a 3D shape. Break the shape into faces and find the area of each.

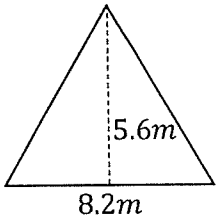
Volume is the space inside a 3D object.

- Rectangular prism: $V = l \times w \times h$

AREA OF POLYGONS PRACTICE

Find the area of each shape below. Show all working

1.



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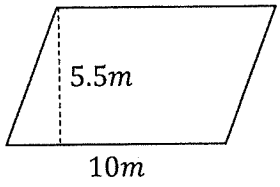

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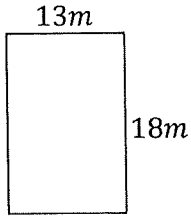

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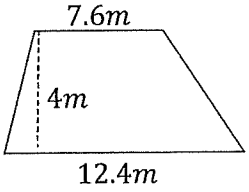

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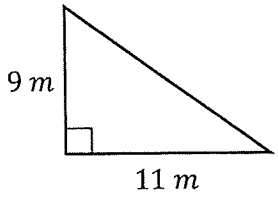

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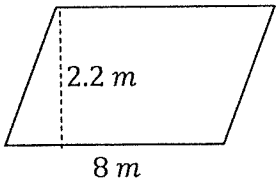

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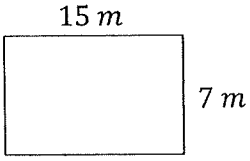

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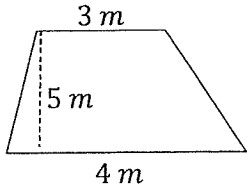

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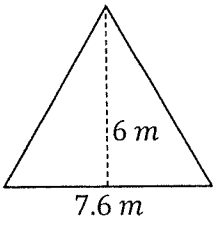
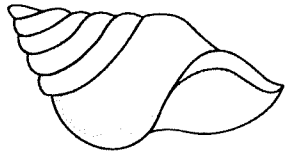
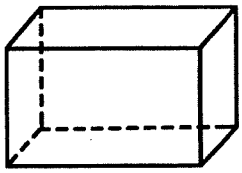
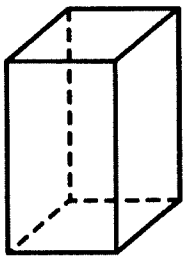
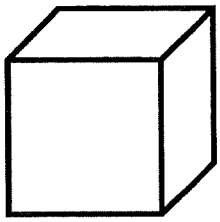
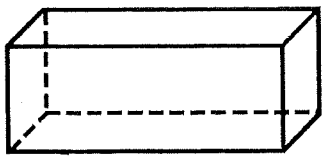




SURFACE AREA & VOLUME PRACTICE

OBJECT	DIMENSIONS	SURFACE AREA	VOLUME
1. 	Length = 32 inches Width = 14 inches Height = 22 inches		
2. 	Length = 7 inches Width = 2 inches Height = 19 inches		
3. 	Length = 0.3 meters Width = 0.3 meters Height = 0.3 meters		
4. 	Length = 30 cm Width = 15 cm Height = 18 cm		

CONCEPT REMINDERS

Mean (average): Add all numbers and divide by how many there are.

Median: The middle number when values are in order.

Mode: The number(s) that appear most often.

Range: The difference between the largest and smallest numbers.

Line plots display frequency of data on a number line.

Box plots show median, quartiles, and extremes to describe data spread.

Bar graphs and histograms show the distribution and frequency of data.

Mean Absolute Deviation (MAD) measures how spread out the data is from the mean.

MEASURES OF CENTER & RANGE PRACTICE

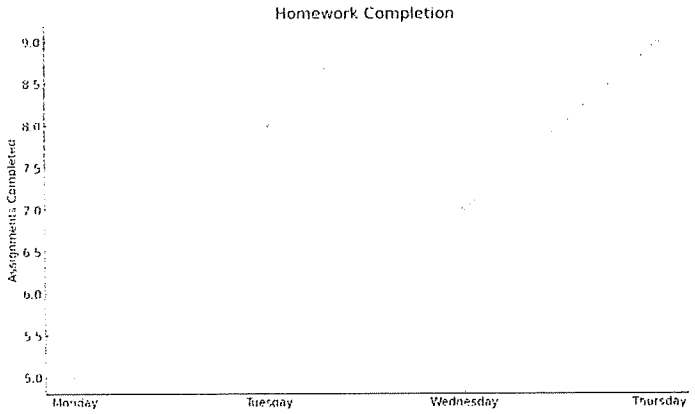
Find the mean, median, mode, or range for each set of data. Show your work.

1. Mean: 4, 7, 6, 5, 8	2. Median: 10, 6, 4, 8, 12	3. Mode: 3, 3, 6, 9, 3, 2
4. Range: 5, 12, 3, 8, 10	5. Mean: 15, 18, 12, 20	6. Median: 7, 3, 9, 1, 5
7. Mode: 6, 2, 2, 4, 5, 6, 2	8. Range: 9, 1, 4, 10, 7	9. Mean: 21, 23, 25, 19
10. Median: 8, 11, 9, 6, 7	11. Mode: 13, 15, 13, 14, 15, 13	12. Range: 30, 22, 25, 28, 26

READING & INTERPRETING GRAPHS PRACTICE

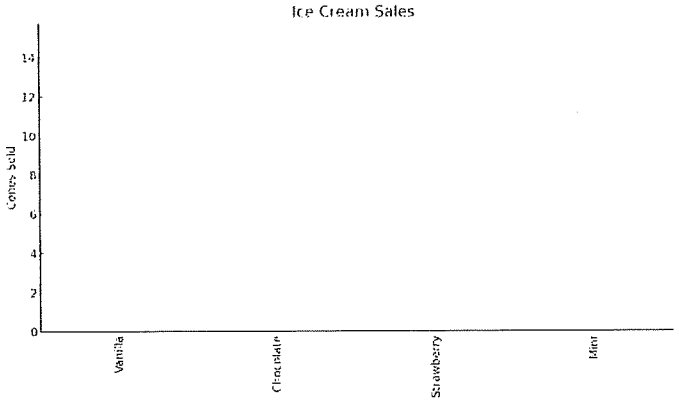
1. On which day were the most assignments completed?

What is the total number of assignments completed?



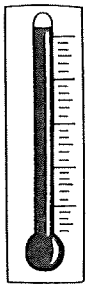
2. Which flavor was most popular?

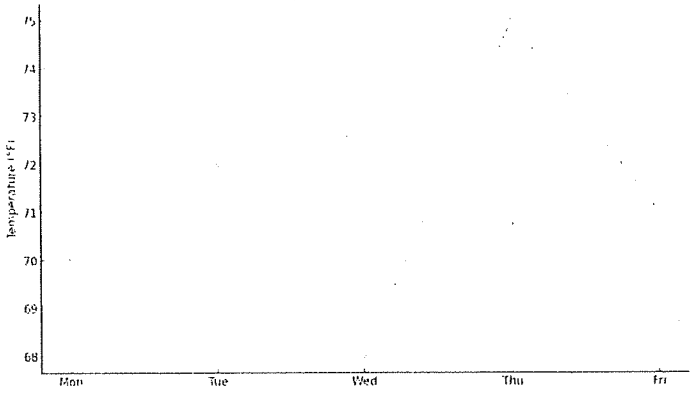
How many more cones of Vanilla were sold than Mint?



3. On which day was it warmest?

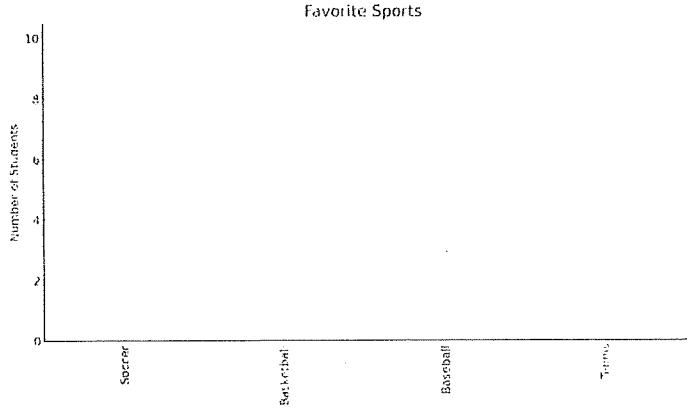
What was the average temperature for the week?





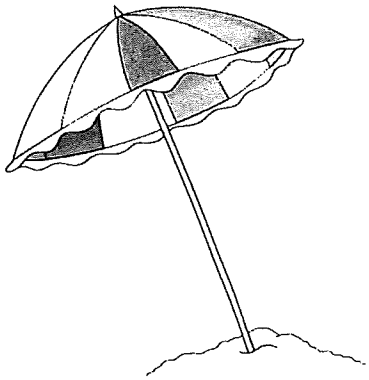
4. Which sport is the most popular?

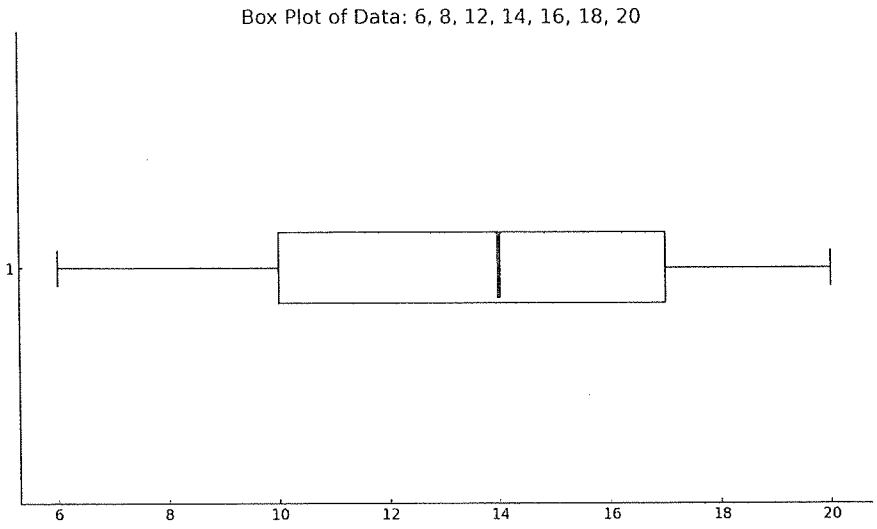
How many students chose Tennis and Baseball combined?



BOX PLOTS & MEAN ABSOLUTE DEVIATION PRACTICE

Refer to the box plot for questions 1-3

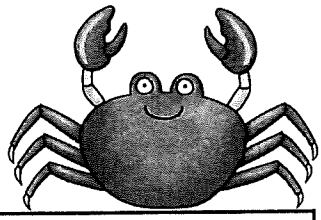




1. What is the median of the data shown in the box plot?	2. What are the minimum and maximum values?	3. What is the Interquartile Range?
4. Find the mean of: 3, 5, 7, 9, 11	5. What is the Mean Absolute Deviation (MAD) of the data set in Q4?	6. Explain what the MAD tells you about the spread of data.

7. Draw a box plot for the following data set: 6, 10, 5, 7, 4, 12, 5, 7, 8

SECTION 7 – MIXED REVIEW



Complete each problem. Show your work. Use your knowledge from all previous sections.

1. Write a ratio: 4 red marbles to 6 blue marbles	2. Find the unit rate: 120 miles in 2 hours	3. $\frac{2}{3} + \frac{5}{6} = ?$
4. $3.2 \times 1.5 = ?$	5. Convert 0.75 to a fraction and percent	6. Order: -3, 0, 5, -8, 2 from least to greatest
7. $\lvert -7 \rvert = ?$	8. $-4 + 9 = ?$	9. Evaluate: $3x + 5$ when $x = 2$
10. Solve: $x - 6 = 10$	11. Area of triangle with b=8, h=5	12. Volume of box: l=4, w=3, h=2