Lesson # 17

Divisibility

Date

Warmup

1. 475 students go to lunch at the same time. Each table seats 5 children. Will there be any tables with less than 5 students (assume that all students are present)?

2. The eighth grade students in River Oaks County Schools are taking a trip to Tennessee. The adult leaders separated the 237 students into groups of 3. How many groups of 3 are there? How any children are left over?

There are _____ groups of 3
There are _____ students left over.

3. A company produces 34,821 pencils each day. Each box holds 9 pencils. After filling as many boxes as possible, will there be left over pencils to box the following day?

4. Solve for x:

$x - 4.73 = 10.77$ *Check*

I. Divisibility

Is 64 divisible by:

2? _____ 3? _____ 4?_____
5?_____ 6?_____ 7?_____
8?_____ 9?_____ 10?_____

A number is divisible by an amount if it goes in evenly, no remainder.

5. Is 68 divisible by:

2? _____ 3? _____ 4?_____

5?_____ 6?_____ 7?_____

8?_____ 9?_____ 10?_____

6.

7.

Divisibility Rules:

Divisible By	Rule
2	The last digit is 0,2,4,6,8
3	The sum of the digits is divisible by 3
4	The last two digits are divisible by 4
5	The last digit is 0 or 5
6	The number is divisible by 2 and 3
7	There is no simple test, divide the number by 7.
8	The last three digits are divisible by 8
9	The sum of the digits is divisible by 9
10	The last digit is 0

8.

9.

11. (Use the divisibility tests, you can check by division)

II. Using the Divisibility Tests with Large Numbers

Is 154,879,064 divisible by:

2? _____

3? _____

4?_____

5?_____

6?_____

7?_____

8?_____

9?_____

10?_____

12. Is _____ divisible by:

2? _____

3? _____

4?_____

5?_____

6?_____

7?_____

8?_____

9?_____

10?_____

Lesson # 18

Solving Multiplication and Division Equations

Date

Warmup

1. $s + 7 = 16$

2. $b - 9 = 12$

3. $74 + p = 98$

I. Solving Multiplication Equations

The bears are not equal in weight.

$4s \quad 8$

$=$

s

$=$

$7p = 77$

To Solve Multiplication Equations:

1. Write the equation
2. To isolate the variable, divide the same amount on both sides.
3. Simplify.
4. Check your answer.

$54 = 6x$

5.

$8c = 24$ *Check*

6.

$16\,y = 64$ *Check*

II. Solving Division Equations

$\frac{t}{4}$ 2

=

$\frac{y}{3} = 10$

t

=

To Solve Division Equations:

1. Write the equation
2. To isolate the variable, multiply the same amount on both sides.
3. Simplify.
4. Check your answer.

7.

$\frac{m}{9} = 9$ *Check*

8.

$\frac{w}{3} = 6$ *Check*

III. Solving Multiplication and Division Equations with Decimals

$1.54\,x = 4.62 \quad Check$

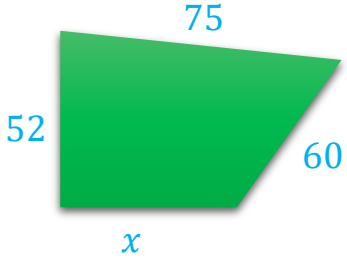
To solve multiplication and division equations with decimals follow the same rules as solving multiplication and division equations.

9. $9.1x = 20.475 \quad Check$

10. $\frac{z}{9.8} = 1.2 \quad Check$

IV. Word Problems with Equations

The perimeter of a polygon is the distance around the figure. Calculate the length of the missing side of the quadrilateral (4 – sided polygon) when the perimeter is 228 cm.



Sam is twice the age of Tim. If Tim is 9 years old, how old is Sam?

John is twice the age of Tom. If John is 9 years old, how old is Tom?

11. The area of a rectangle is calculated by multiplying the length times the width. The area of a rectangle is 40 and the width is 10. Find the length. (Hint: A = lw)

12. Bob divided his money into two equal amounts. How much money does he have if each pile has $194,567.

Lesson # 19

Factors and Greatest Common Factor

Date

Warmup

1. Determine if 416 is divisible by

2: _____ 7: _____
3: _____ 8: _____
4: _____ 9: _____
5: _____ 10: _____
6: _____

2. $2t = 26$

3. $\frac{x}{4} = 8$

4. $t - 7 = 11$

I. Factors of a Number

Determine the factors of each number.

13

Factor:
factor x factor = number

9

8

To determine all the factors of a number: Use the divisibility tests.
Start at 1, write 1 and the number
Next test 2, is the number divisible by 2?
If Yes, 2 x ____ = number, add the two factors to the list.

Continue until you are testing more than ½ the value of the number.

Determine the factors of each number.

20	100
5. 65	6. 28

II. Prime and Composite Numbers

29

Prime Number:
A number that has exactly two factors.
1 and the number

Composite Number:
A number that has more than two factors.

25

List the prime numbers less than 50

Prime Numbers:

Determine if each number is prime or composite. (Circle the answer)

27 prime composite	75 prime composite	36 prime composite
7. 55 prime composite	47 prime composite	93 prime composite

III. GCF: Greatest Common Factor

20: 1, 2, 4, 5, 10, 20
100: 1, 2, 4, 5, 10, 20, 25, 50, 100

GCF of 20 and 100 is _____

GCF (Greatest Common factor)

The GCf is the largest factor that is common to each of the numbers.

Steps to find the GCF (Greatest Common factor)

1. List the factors of each number.
2. Circle the common factors.
3. The largest number circled is the Greatest Common Factor (GCF)

What is the GCF of 20 and 25?

8. What is the GCF of 12 and 24?

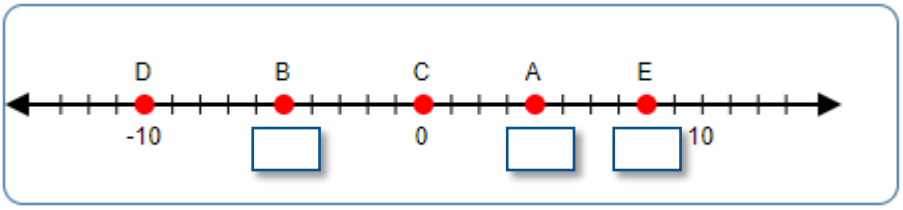
Lesson # 20

Absolute Value and Adding Integers

Date

Warmup

1.



Write an integer for the following situations:

2. The cost of supplies for the month of November was $15 above normal.

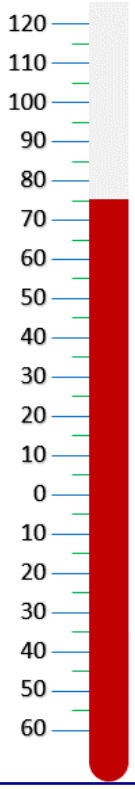
3. The cost of supplies for the month of January was $45 below normal.

4. *Bob owes $25 for his dinner.*

I. Integers

Integers are used in real-life situations.

Thermometer



Scores

5 points off _____

10 points extra credit ____

Integer: positive numbers, zero, and negative numbers with no fractional part.

Money

A deposit of $40 _____

A withdrawal of $15 _____

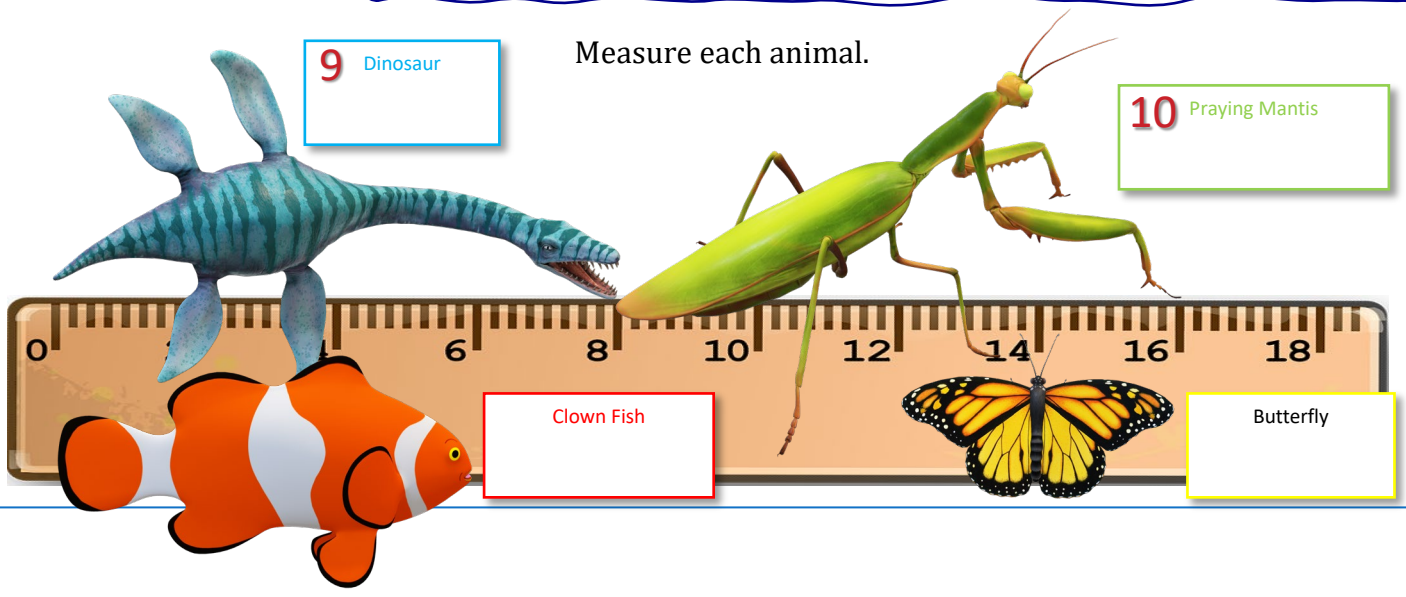
Negative

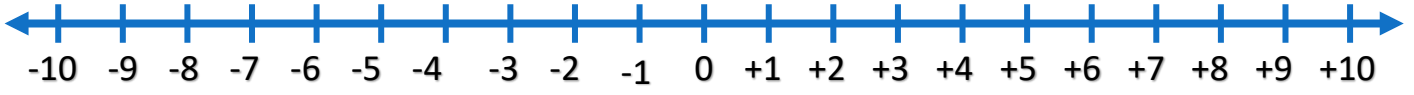
Positive

II. Absolute Value

When measuring how long an object is, the value will always be a positive number.

Measure each animal.





How far is +4 from zero? _____

How far is -4 from zero? _____

How far is -6 from zero? _____

How far is +3 from zero? _____

Absolute Value: Absolute Value is how far a number is from zero on a number line.

The absolute value of x is written as: | x |

It means how far is x from zero.

| -3| = 3 | +3 | = 3

| -6| = | |+25| = | |0| = | 11 |-10| = ___ |5|=___ |-4|=___

III. Adding Integers

-5 + 5 =

+10 + -10 =

Additive Inverses: Two numbers that are opposites are also called additive inverses.

(We saw then when we discussed Addition and Subtraction are inverse operations.)

The sum of additive inverses is _____

+7 + -7 = _____ -2 + +2 = _____

Sam owes John four dollars. What is the result after he borrows two more dollars?

Jane earned $20 for babysitting on Friday. How much does she have after she earns $35 for babysitting on Saturday?

To add integers with the same signs:
Add the numbers
Keep the sign

-4 + -8 =

+5 + +1 =

-10 + -7 =

+3 + 2 =

-8 + -3 =

+4 + +9 =

-3 + -12 =

+8 + 12 =

13

Nathaniel's mowing customer paid him $15. The next day he bought a starting gear for $7. How much does Nathaniel have?

Anna's Algebra textbook cost $50. She gave the cashier $40. What is the result of this transaction?

To add integers with different signs:
Find the difference
Sign of the larger number

-5 + +1 =

+3 + -2 =

+8 + -2 =

+7 + -9 =

-6 + +10 =

-3 + 6 =

14

15

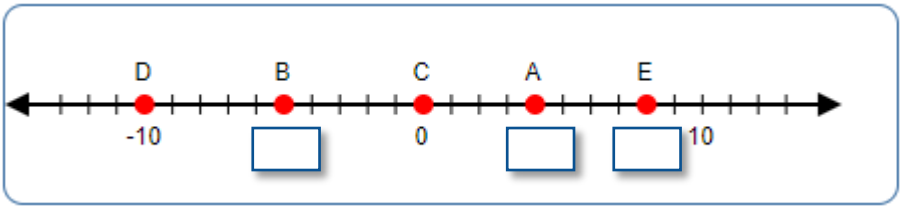
Lesson # 21

Absolute Value and Adding Integers

Date

Warmup

1.



2. The following is The Coop Coach's check book register. After writing check number 2156 for photo shoot on 10/7/2024, what is the current balance in their account?

Check Num	Date	Description of transaction	Debits (-)	Credits (+)	Balance
2154	10/4/2024	website maintenance	124.51		16417.74
2155	10/5/2024	starter and grower feed	32.98		16384.76
2156	10/7/2024	photo shoot	725.64		

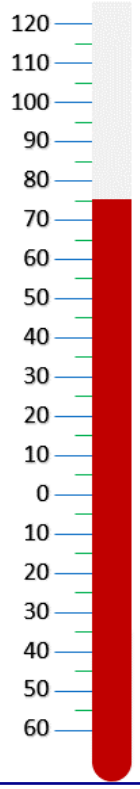
3. Identify each Property.

4. $\frac{6}{25} + \frac{2}{25} =$ ____

I. Integers

Integers are used in real-life situations.

Thermometer



Scores

5 points off _____

10 points extra credit ____

Integer: positive numbers, zero, and negative numbers with no fractional part.

Money

A deposit of $40 _____

A withdrawal of $15 _____

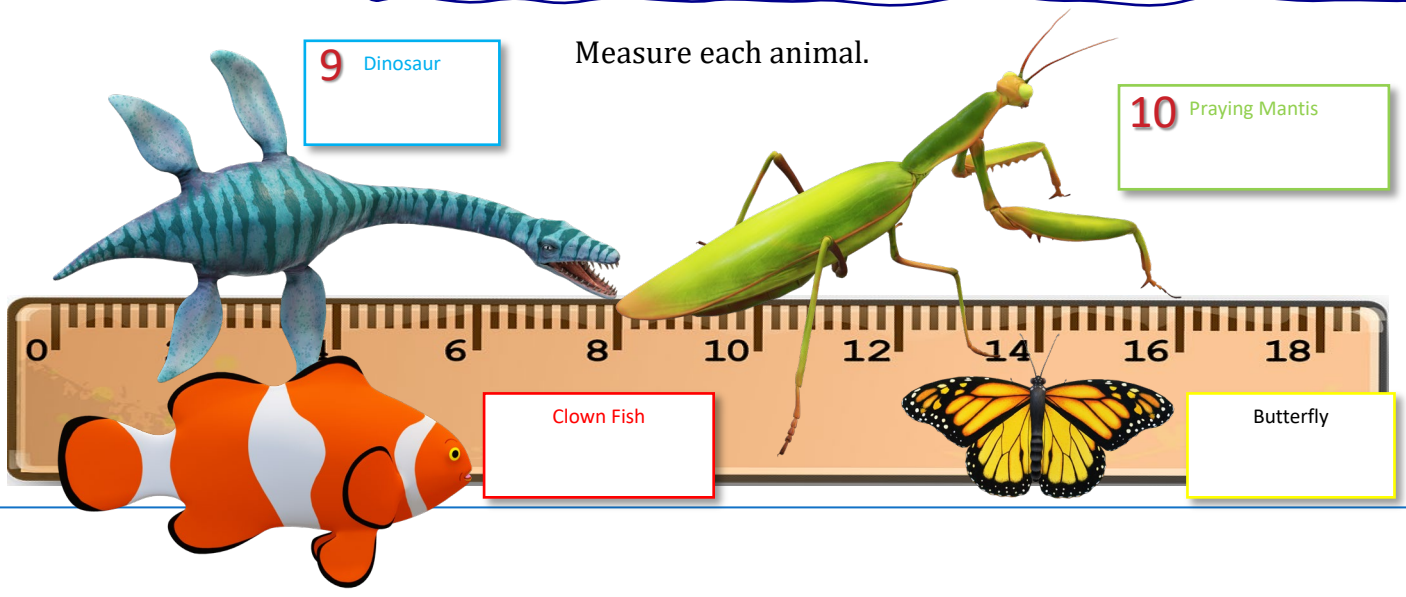
Negative

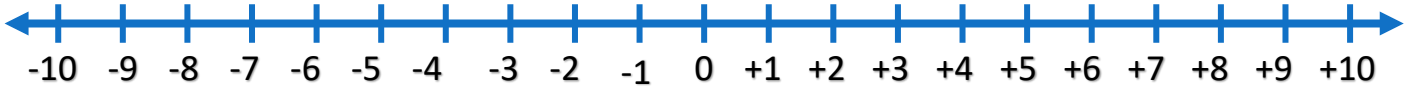
Positive

II. Absolute Value

When measuring how long an object is, the value will always be a positive number.

Measure each animal.





How far is +4 from zero? _____

How far is -4 from zero? _____

How far is -6 from zero? _____

How far is +3 from zero? _____

Absolute Value: Absolute Value is how far a number is from zero on a number line.

The absolute value of x is written as: | x |

It means how far is x from zero.

| -3| = 3 | +3 | = 3

| -6| = | |+25| = | |0| = | 11 |-10| = ___ |5|=___ |-4|=___

III. Adding Integers

-5 + 5 =

+10 + -10 =

Additive Inverses: Two numbers that are opposites are also called additive inverses.

(We saw then when we discussed Addition and Subtraction are inverse operations.)

The sum of additive inverses is _____

+7 + -7 = _____ -2 + +2 = _____

Sam owes John four dollars. What is the result after he borrows two more dollars?

Jane earned $20 for babysitting on Friday. How much does she have after she earns $35 for babysitting on Saturday?

To add integers with the same signs:
Add the numbers
Keep the sign

-4 + -8 =

+5 + +1 =

-10 + -7 =

+3 + 2 =

13.

-8 + -3 =

+4 + +9 =

-3 + -12 =

+8 + 12 =

14.

Nathaniel's mowing customer paid him $15. The next day he bought a starting gear for $7. How much does Nathaniel have?

Anna's Algebra textbook cost $50. She gave the cashier $40. What is the result of this transaction?

To add integers with different signs:
Find the difference
Sign of the larger number

-5 + +1 =

+3 + -2 =

15.

+8 + -2 =

+7 + -9 =

-6 + +10 =

-3 + 6 =

16

17

Lesson # 22

Polygon Families

Date

Warmup

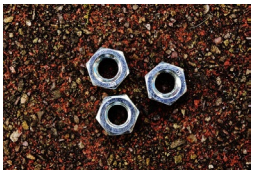
1. $+15 + +4 =$

2. $7 + -11 =$

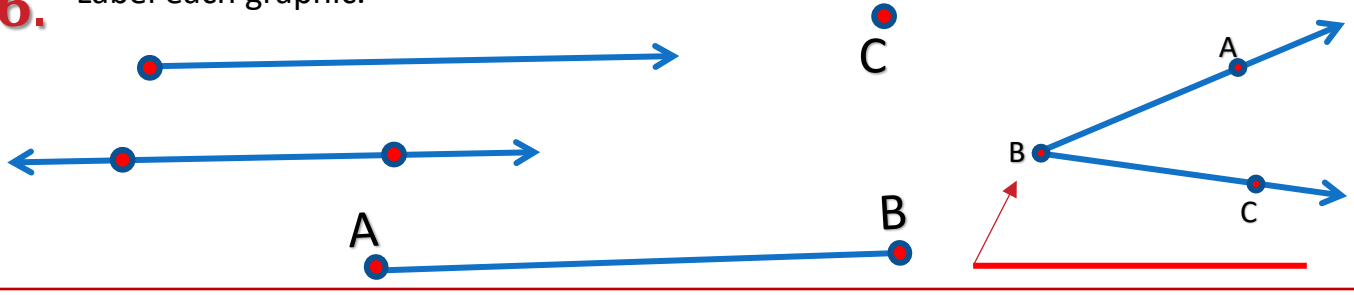
3. $-3 + 14 =$

4. $-8 + -4 =$

5. Write the name of each item pictured.



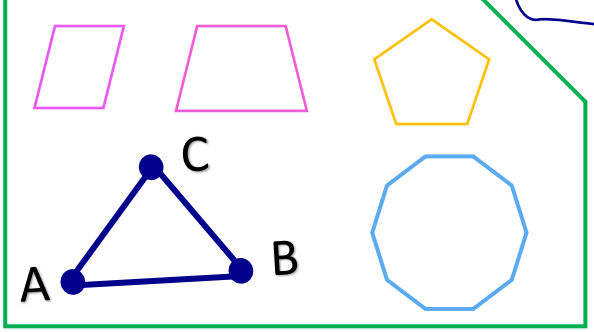
6. Label each graphic.



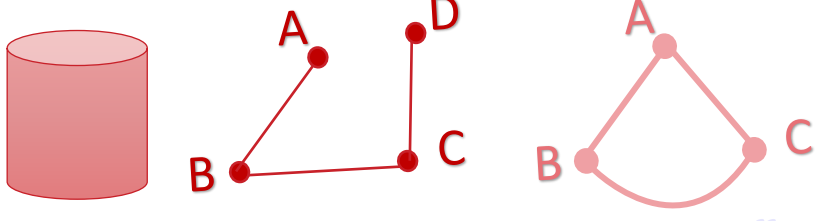
I. Polygons

Polygon: A closed figure in a plane made of 3 or more line segments.

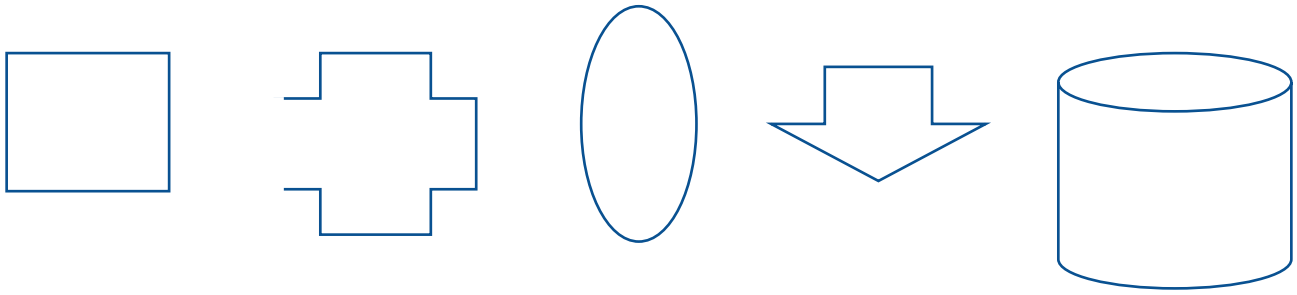
Examples of polygons



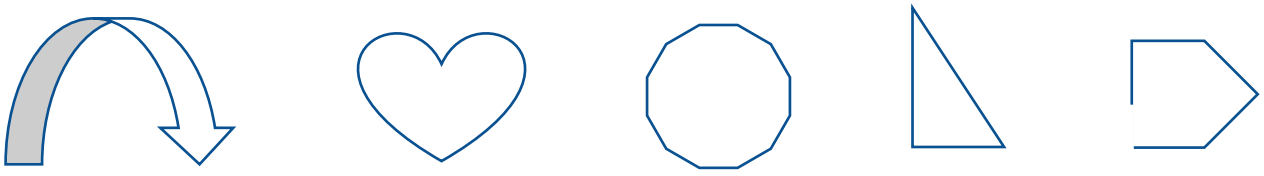
Examples of figures that are NOT polygons



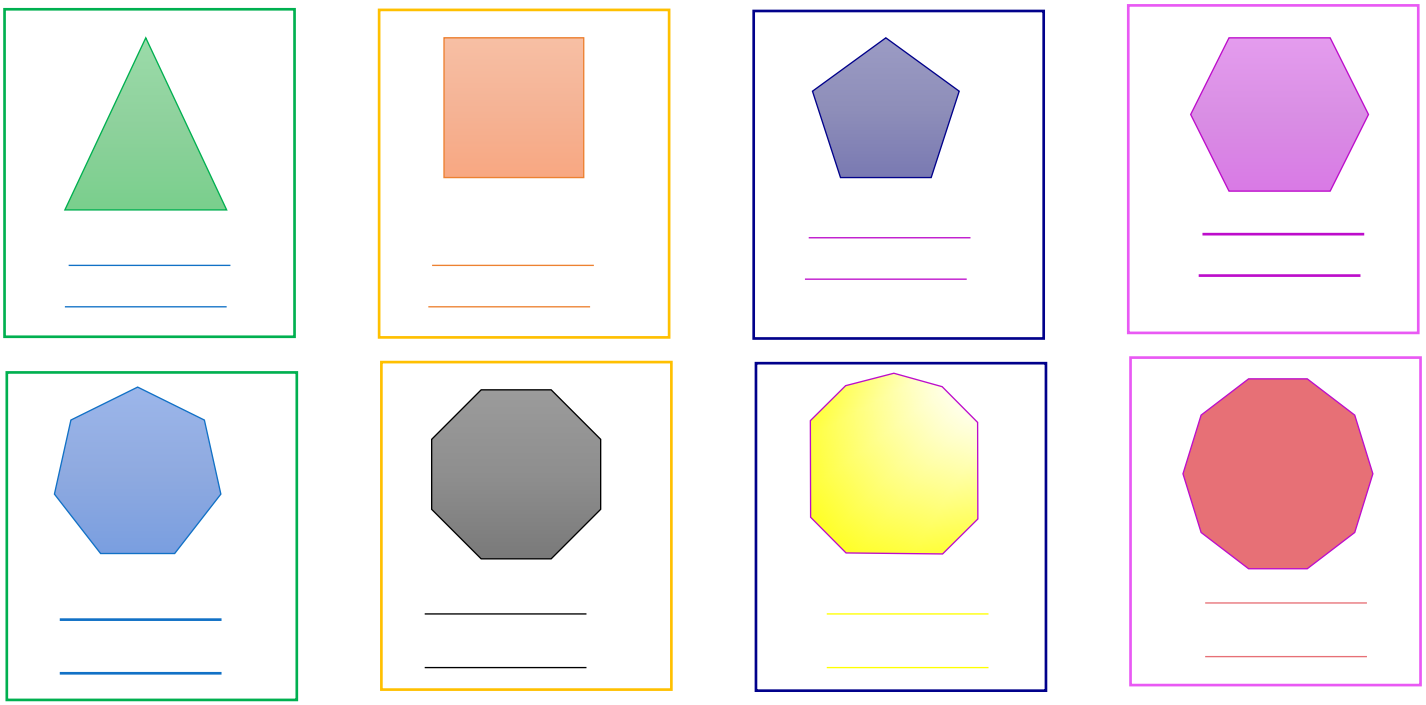
Determine if each figure is a polygon.



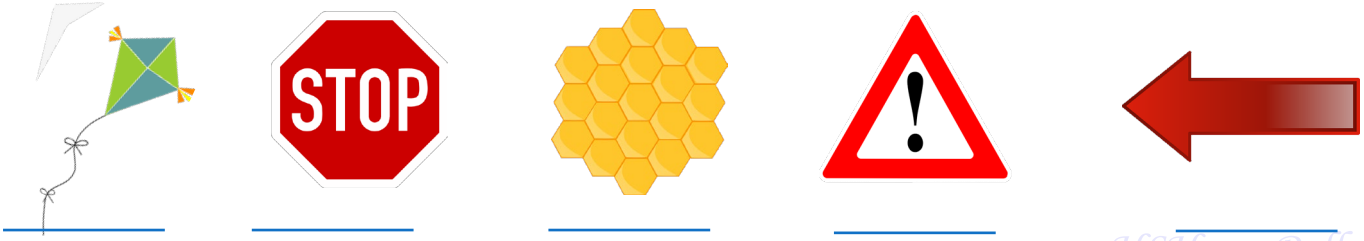
7. Determine if each figure is a polygon. If it is not, tell why it is not a polygon.



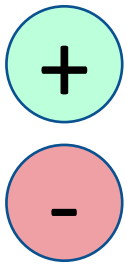
II. Classifying Polygons



9. Write the name of the polygon shown in each graphic.

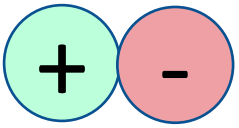


III. Using Counters to Calculate Sums



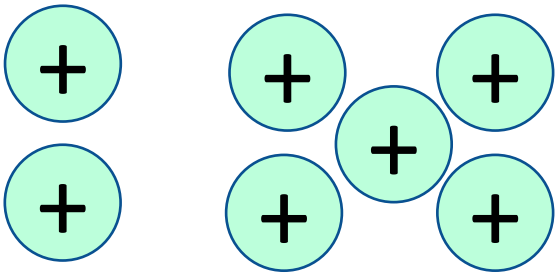
represents +1

represents -1

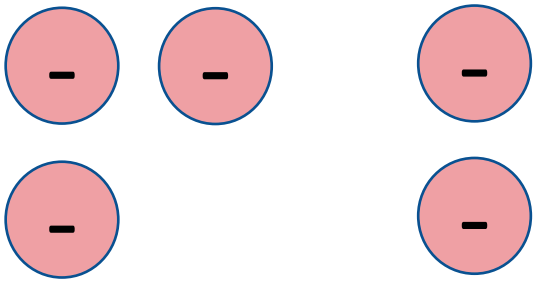


represents 0

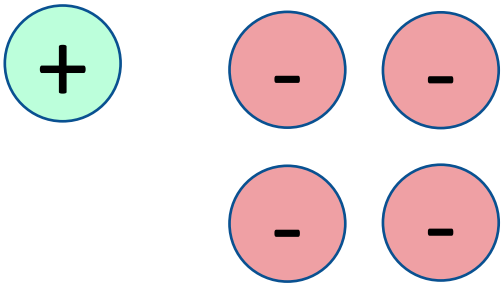
+2 + +5



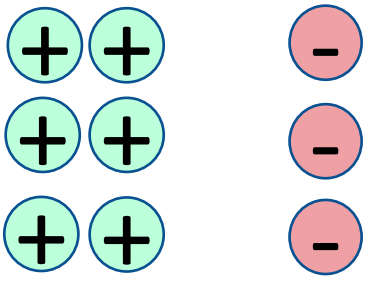
-3 + -2



+1 + -4



+6 + -3



10. -3 + +4

11. -6 + -5

12.

Lesson # 23

Statistics: Organizing Data Using Frequency Tables

Date

Warmup

1. Identify each polygon

2. $4 + -10 =$ _____ $\quad 7 + 6 =$ _____

$-9 + -5 =$ _____ $\quad -1 + 8 =$ _____

3. Solve and Check

$18x = 5.4$

4.

The following is Math Tutor's check book register. After writing check number 4025 for Samsung Tablet on 9/20/2021, what is the current balance in their account?

Check Num	Date	Description of transaction	Debits (-)	Credits (+)	Balance
4023	9/7/2021	Color Printer	154.21		12346.74
4024	9/15/2021	Monitor	500.00		11846.74
4025	9/20/2021	Samsung Tablet	725.65		

I. Statistics

Statistics: Statistics is the branch of mathematics dealing with collecting, organizing, interpreting, and presenting data.

Surveys can be as small as 1 question.

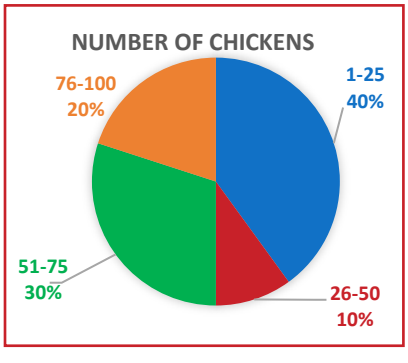
Survey people who are in a chicken group.

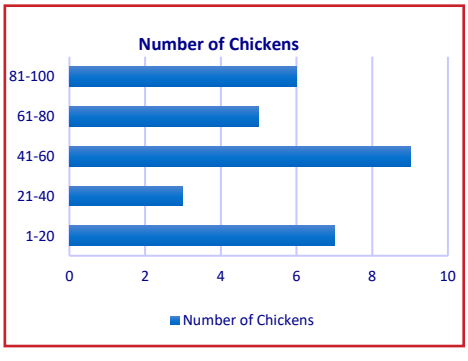
How many chickens are you currently raising?

Samples: Since we can not survey all people, a smaller group of people are chosen randomly to represent the entire population.

Data: Data are pieces of information. Data is often numerical. The group of data is often referred to as the set of data.

# of chickens					
7	48	10	43	4	67
9	53	59	93	59	86
50	62	1	15	99	5
56	6	67	100	94	60
4	58	24	5	86	10





It is easier to understand data when it is organized.

II. Tally Marks

Tally Marks: Tally Marks are counters used to make the process of recording the data more accurate.

1=_____ 6=_____
2=_____ 7=_____
3=_____ 8=_____
4=_____ 9=_____
5=_____ 10=_____

6. What number is represented by the following tally marks?

𝍸 𝍸 || = ☐

|||| = ☐

𝍸 ||| = ☐

III. Scale and Intervals

Scale: The scale includes the least and greatest value.

Interval: The interval separates the scale into equal parts.

- Choose an interval that is consistent. (if 5 numbers are in each interval, all the intervals must have 5 numbers.)
- Use a scale that has all the numbers in the data set.
- There should be at least one number in the data set in both the lowest category and the highest category.

How many members are in the data set 1-9?_____

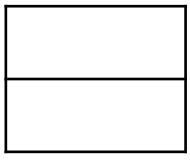
, they are _____

How many members are in the data set 0-9?_____

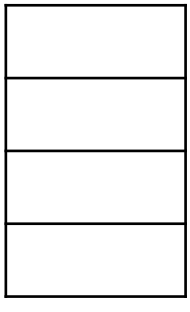
, they are _____

What are the intervals for data whose scale is 1 to 100 if there must be 2intervals? 4 intervals? 5 intervals? 10 intervals?

2 Intervals?



4 Intervals?



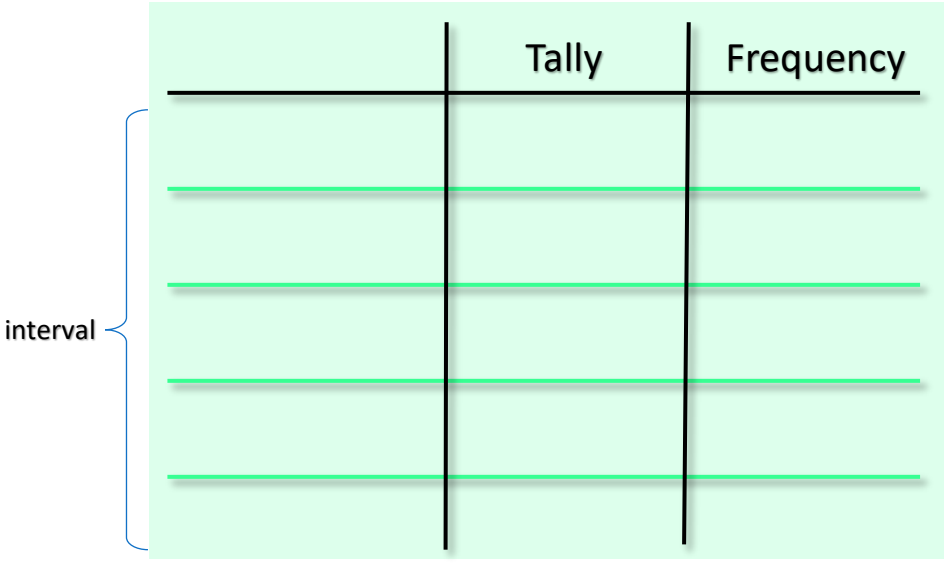
10 Intervals?

5 Intervals?

8. What are the intervals for data whose scale is 70 to 99 if there must be 5 intervals?

IV. Frequency Tables

Frequency Tables: A frequency table organizes data by separating the information into given intervals.



# of chickens					
7	48	10	43	4	67
9	53	59	93	59	86
50	62	1	15	99	5
56	6	67	100	94	60
4	58	24	5	86	10

What is the smallest number of chickens someone is raising? _____

The largest amount? _____

The scale for the chicken survey is _____ - _____

How many people were surveyed? _____

How many people are raising between 21-40 chickens? _____

Write one sentence that can explain the distribution of data.

_____

_____

What is your favorite color?

blue red green purple

What color was liked the most? _____

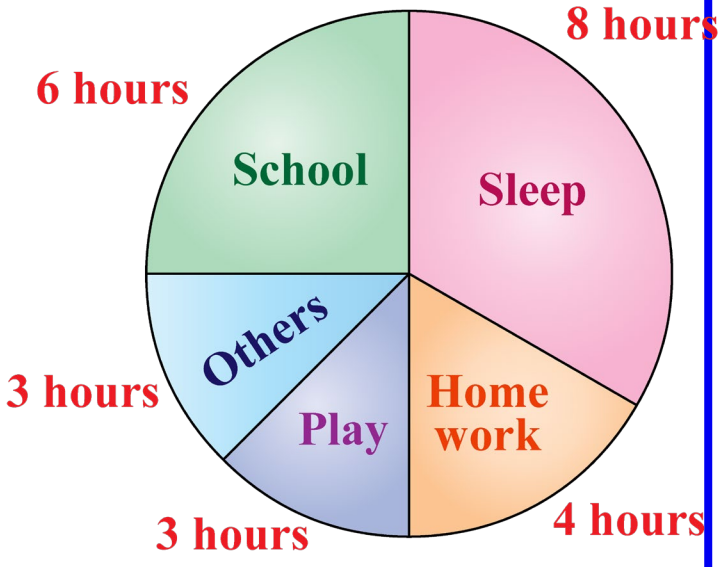
What color was liked the least? _____

How many students were surveyed? _____

How many children in your family?

1 2 3 4 5 6 7 8

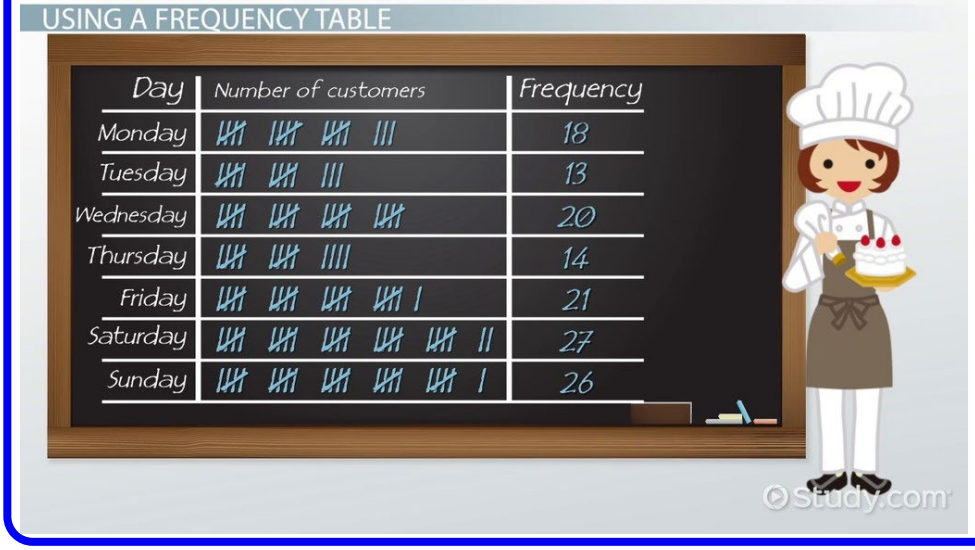
Categories	Tally Marks	Frequency
Red	𝍸	5
Green	𝍸 |	6
Blue	||	2
Black	|	1
Yellow	|||	3



0	**10**	**5**	**4**	**10**	**50**
80	70	60	56	94	86
24	59	67	80	86	100
48	93	34	15	67	59
43	99	48	32	9	45

Baseball Team Runs Per Inning	
Number of Runs	Frequency
0	4
1	3
2	1
3	1

Number of Children	Tally Marks	Number of Families (frequency)
1	𝍸 |	6
2	𝍸 𝍸	10
3	||||	4
	Total	20



Siblings	Frequency
0	1
1	4
2	6
3	4
4	2
5	1
Total:	18

Lesson # 24

Subtracting Integers

Date

Warmup

1. Bob has $40. He buys a watch for $26.
He now has $_____

2. John received and paid a restaurant bill for $150 before he realized it was not his bill. How much does he have after the restaurant refunds his money if he currently has $500.
He now has $_____

3.

4 + -2 = ____
-6 + -5 = ____
-8 + 3 = ____
-9 + 10 = ____

To add integers
with the same signs:
_____
_____
with different signs:
_____
_____

4.

4 - 2 = ____
7 - 8 = ____
5 – 1 = ____
9 – 6 = ____

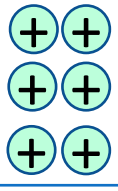
4 + -2 = ____
7 + -8 = ____
5 + -1 = ____
9 + -6 = ____

I. Subtracting Integers

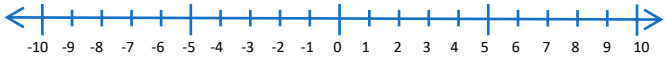
6 - 8 =

Have $6 pay $8.

Using Counters



Using a Number Line



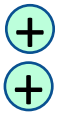
Calculate:

4 – 7 =	3 – 4 =	6 – 10 =	2 - 8 =

(Reminder: Blue questions allow you to practice as many times as you need to understand the concept.)

5.

2 - -7 =

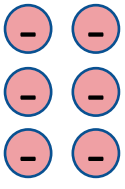
Have $2 needs to be refunded a payment of $7.	**Using Counters** 	**Using a Number Line** 

Solve each by adding the opposite:

4 - -3 =	-5 - +9 =	-6 - -11 =	+7 - +8 =

6.

-6 - -2 =

Owe $6 and need to be refunded a payment of $2.	**Using Counters** 	**Using a Number Line** 

Solve each by adding the opposite:

-3 - -2 =	-6 - +3 =	-8 - -12 =	+10 - +4 =

7.

To subtract integers:

Change the subtraction to "adding the opposite"

Follow the addition rules

II. Algebraic Expressions with Integers

Evaluate each expression when a=2, b=5, and c=-6

b-10 a-b c-a

Evaluate each expression when a=-5, b=8, and c=-10

b-a a+c c - b

9. Evaluate each expression for x = -15, y = 7, and z = -9

y + x = y + z = z – y = x - y =

III. Word Problems with Integers

Calculate the Range

Number of Siblings		
# Siblings	Tally Marks	Frequency
1	𝍸	5
2	𝍸	5
3	III	3
4	𝍸 II	7
5	𝍸	5
6	III	3

largest = _____

smallest = _____

largest-smallest = _____

The range is _____

The scale is _____

Range: The difference of the largest value and smallest value

The record low temperature in New York was on February 9, 1934 in Stillwater Reservoir. The temperature was 52° below zero. The highest temperature recorded in New York was on July 9, 1936 in New York City at 106°. What is the range of record temperatures for New York?