"I call it 'zero'."

CHAPTER 1-4 PROPERTIES

What are the patterns here?

- 22 x 0
- 139 x 0
- 1 X 0

Multiplicative Property of Zero

- 22 x 1
- 139 x 1
- 1 X 1

Multiplicative Identity

- 22 + 0
- 139 + 0
- 1 + 0

Additive Identity

Property Summary

1. Multiplicative Prop. Of Zero	1. Any # times 0 is 0
2. Multiplicative Identity	2. Any # times 1 is itself
3. Additive Identity	3. Any number added to zero is itself

Commutative and Associative Game

Symmetric and Transitive Property

Chapter 1-5 Variables and Expressions

Problems to solve in small groups.

Finding patterns

Examples of equations

$5 + 9 = 14$ $2(6) - 3 = 9$ $x + 7 = 19$ $2m - 1 = 13$

open sentence.

Has a variable in it

Working with equations

- How would you solve these?

$x + 7 = 19$

$5x = 6$

$x - 15 = 40$

$72/d = 8$

Strategies

- **Trial and Error** — **time consuming, not ideal**
- **Mental** — **great for simple problems**
- **Algebra** — **full proof , show work!**

An Example

$3x + 1 = 10$ Subtract 1 from both sides

$-1 \quad -1$

$\frac{3x}{3} = \frac{9}{3}$ Can do mentally but in algebra you would divide both sides by 3

$x = 3$ TADA

How do you know what order to go in? Remember PEMDAS?

- PEMDAS to solve

3[6(12 - 3)] – 17	Do innermost ( ) first
3[6(9)] – 17	Do next [ ] next
3[54] – 17	Multiply
162 – 17	Subtract
145	Answer!

SADMEP TO ISOLATE VARIABLE IN EQUATION

- 2x -14 = 28
- +14 +14
- 2x = 42
- 2x/2 = 42/2
- X = 21

- Start with side with most information
- Look for addition or subtraction and do the opposite to balance (+14)
- Look for x and ÷, do opposite (divide by 2)
- Answer

WHEN SOLVING FOR x

S

A

LOOK FOR ADDITION AND SUBTRACTION- move these numbers first (see example that follows)

D

M

LOOK FOR MULTIPLICATION and/or Division (think fractions) move these numbers next (see example that follows)

E

You may eventually need to take care of exponents like $x^2 = 16$ as the last stage

P

Do SADMEP (PEMDAS backwards) to isolate a variable in an equation

$$3[6(12 - x)] - 17 = 145$$
$$+17 \quad +17$$

- Start with side with most information
- Look for + or - first, do opposite to both sides (add 17 in this case)

$$3[6(12-x)] = 162$$

$$\frac{3[6(12-x)]}{3} = \frac{162}{3}$$

- Look for x or ÷ next, do opposite (divide by 3)

$$\frac{6(12-x)}{6} = \frac{54}{6}$$

- Divide by 6

$$12-x = 9$$

- Subtract 12

$$-x = -3$$

- Divide by -1

$$x = 3$$

SHOW WORK!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

This is what happens to children who don't show their work.

Exit Ticket

$c + 12 = 30$; 8, 16, 18

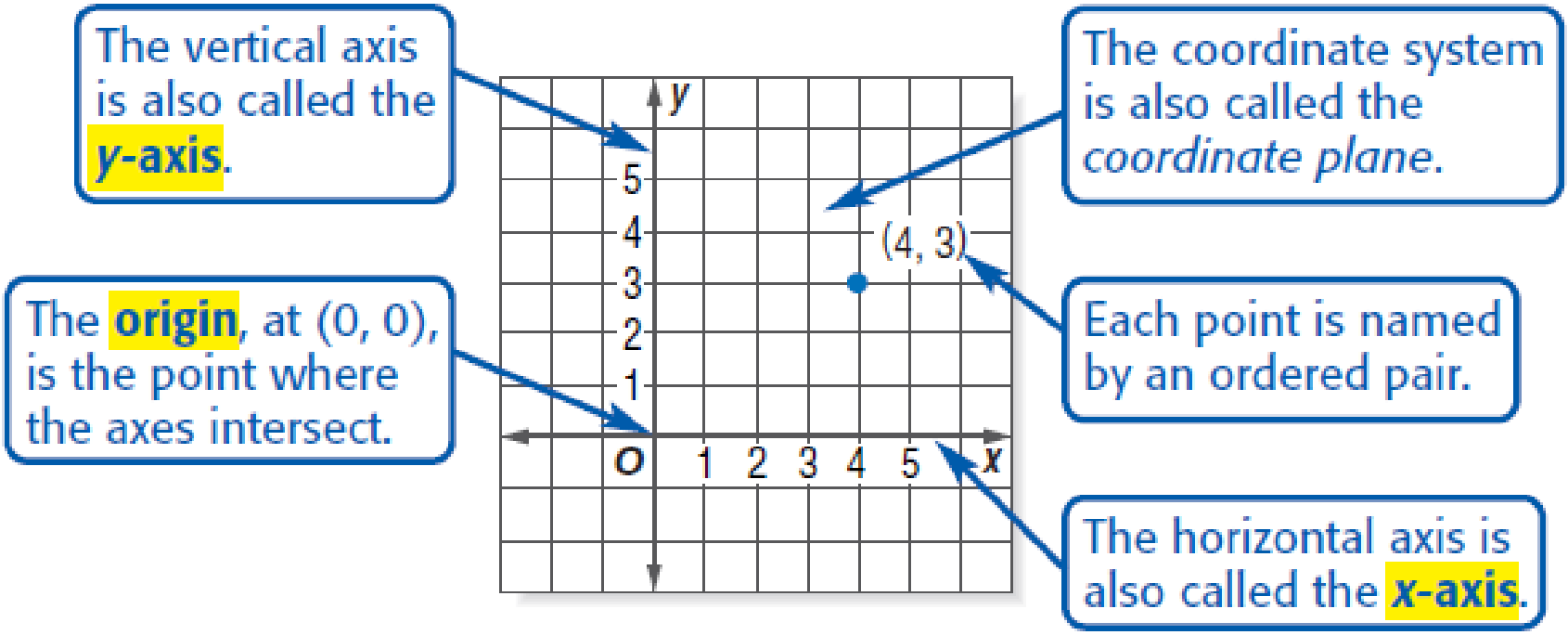
$14 = \frac{56}{d}$

$\frac{60}{p} = 4$; 15, 16, 17

$15 - m = 0$

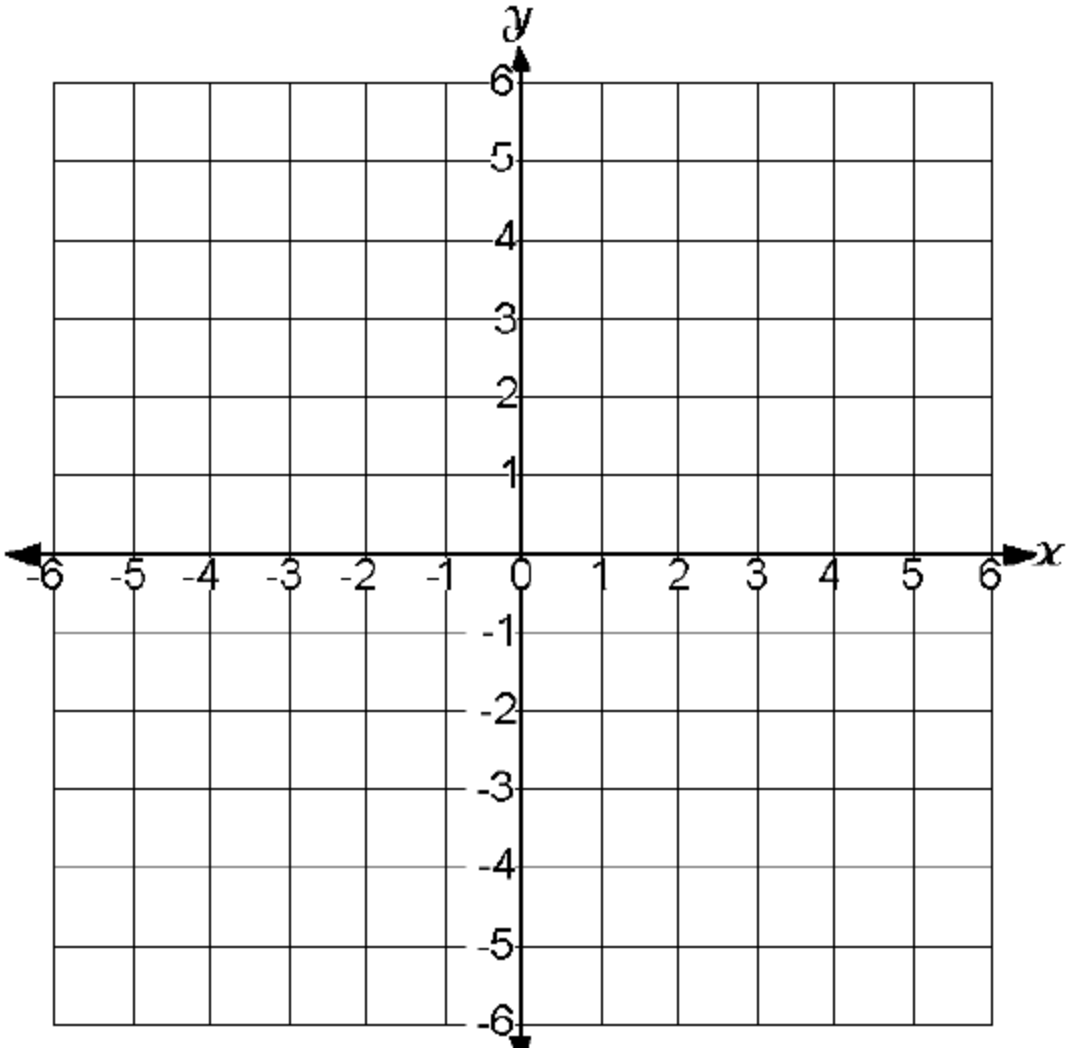
$8c = 88$

1-6 and 1-7 Graphing and Scatter plots



What is this called?

Practice graphing coordinates



Can show these relations in different ways

Domain (x) **Range (y)**

Ordered Pairs

(1, 2)

(2, 4)

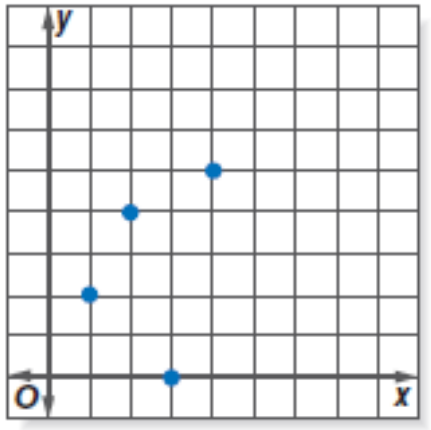
(3, 0)

(4, 5)

Table

x	y
1	2
2	4
3	0
4	5

Graph



WAY TO REMEMBER DOMAIN AND RANGE

- X → Domain
- Y → Range
- Go in Alphabetical order
- Go in Alphabetical order

REAL LIFE APPLICAITON

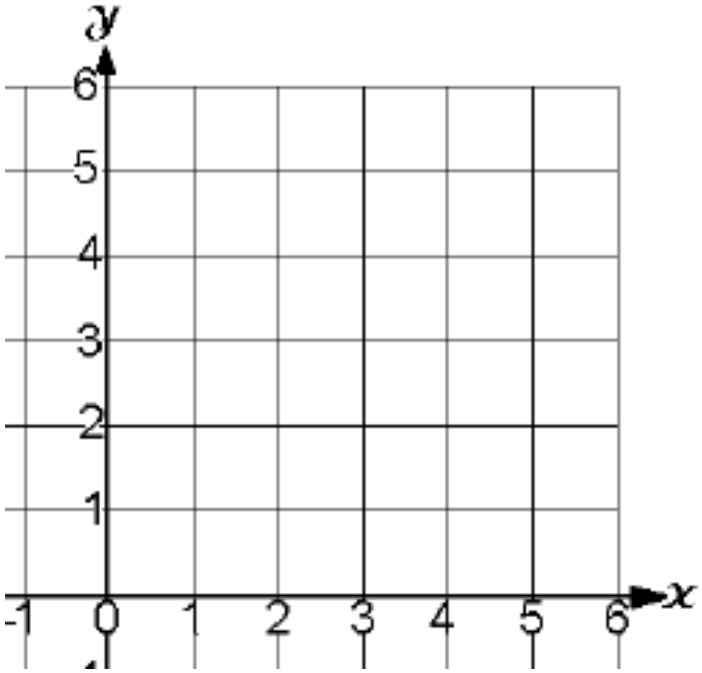
Make a table of ordered pairs in which the x-coordinate represents the number of days and the y-coordinate represents the amount of growth for 1, 2, 3, and 4 days.

x	y	(x, y)
1	3	(1, 3)
2	6	(2, 6)
3	9	(3, 9)
4	12	(4, 12)

PLANTS Some species of bamboo grow 3 feet in one day.

Graph of Data

x	y	(x, y)
1	3	(1, 3)
2	6	(2, 6)
3	9	(3, 9)
4	12	(4, 12)

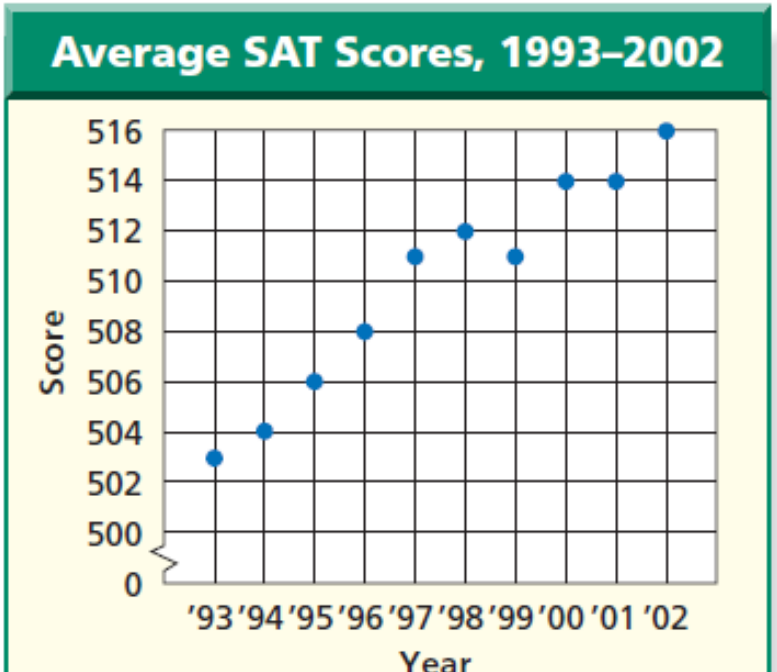


Scatterplot- another way to graph patterns

Example 1 *Construct a Scatter Plot*

TEST SCORES The table shows the average SAT math scores from 1993–2002. Make a scatter plot of the data.

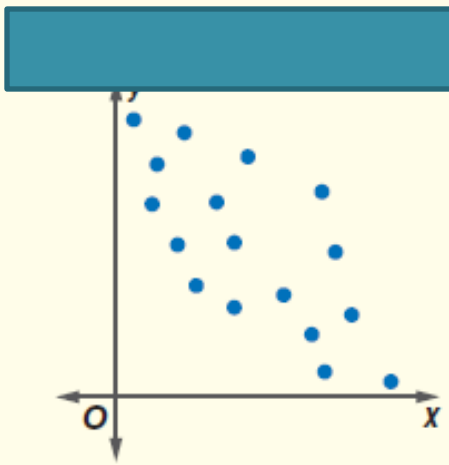
Year	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02
Score	503	504	506	508	511	512	511	514	514	516



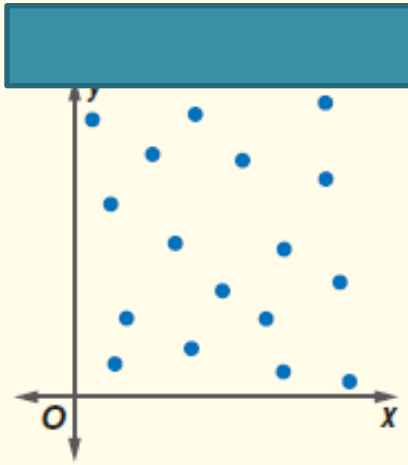
Types of patters in scatter plots

Concept Summary — *Types of Relationships*

As x increases, y increases.



As x increases, y decreases.

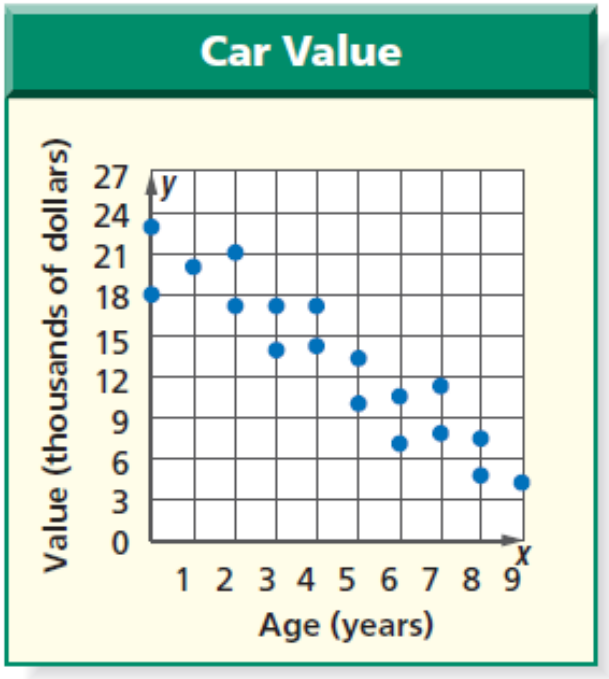


No obvious pattern.

Group One

a. age of car and value of car

As the age of a car increases, the value of the car decreases. So, a scatter plot of the data would show a negative relationship.

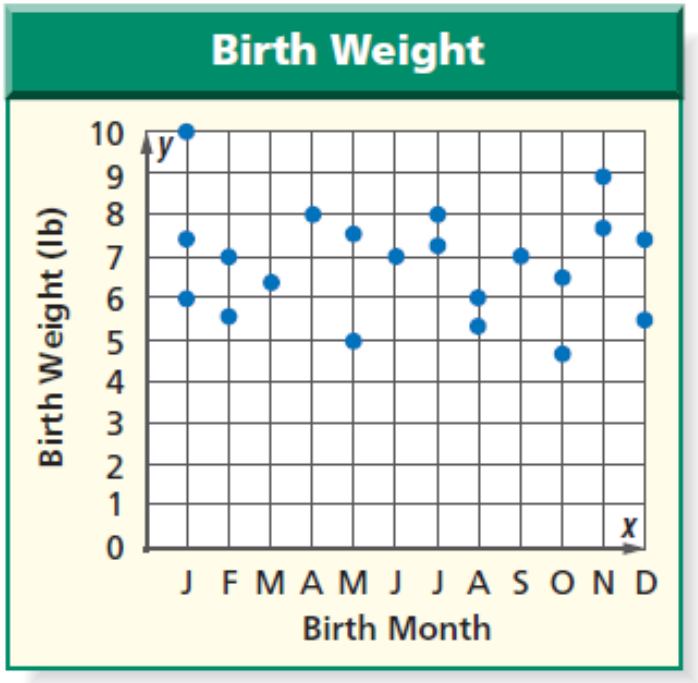


positive, *negative*, or *no* relationship. ?

Group 2

b. birth month and birth weight

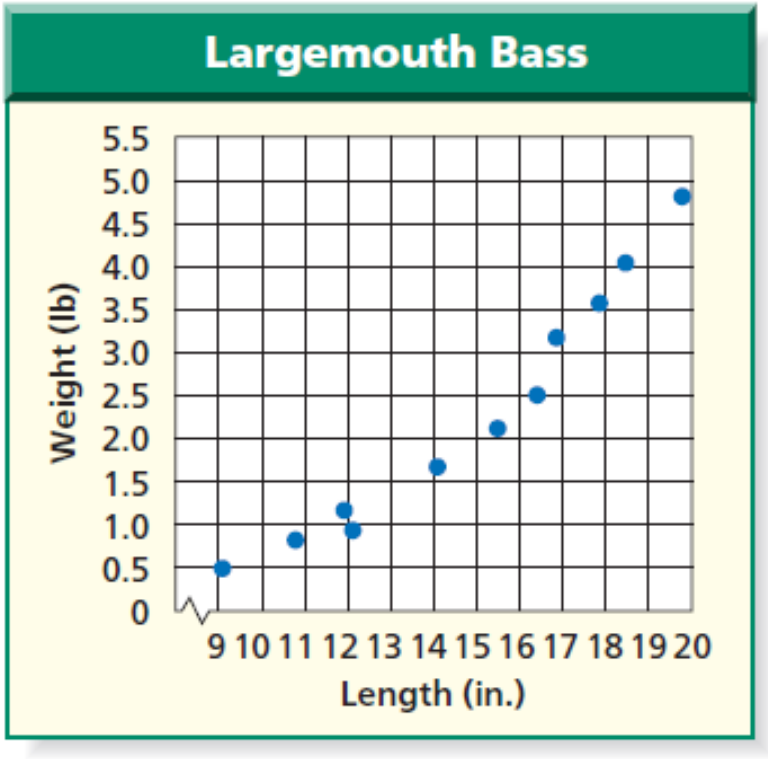
A person's birth weight is not affected by their birth month. Therefore, a scatter plot of the data would show no relationship.



positive, *negative*, or *no* relationship. ?

Group Two

b. Does the scatter plot show a relationship between the length and weight of a largemouth bass? Explain.

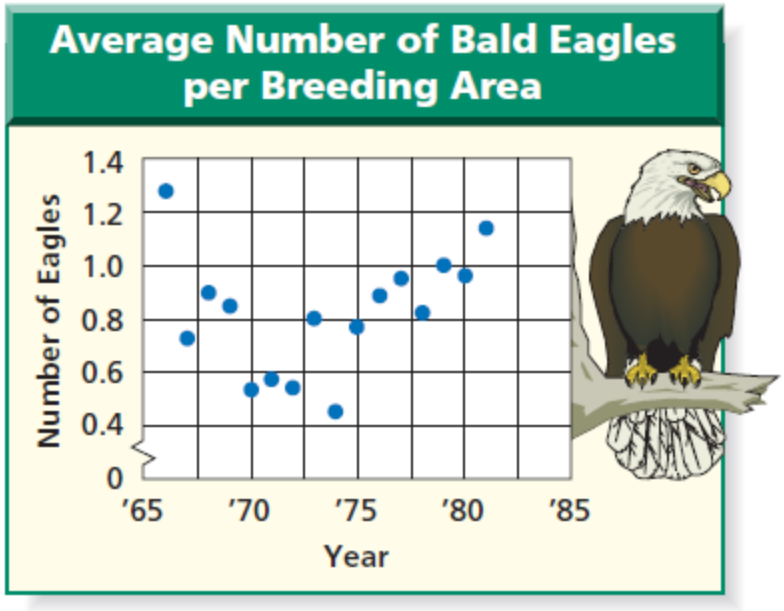


positive, *negative*, or *no* relationship.

?

Group 3

Do the data show a *positive*, *negative*, or *no* relationship between the year and the number of bald eagle hatchlings?



Source: *CHANCE*

What appears to be the trend in the number of hatchlings between 1965 and 1972?

What appears to be the trend between 1972 and 1985?