1.1 Create and Analyze Graphs
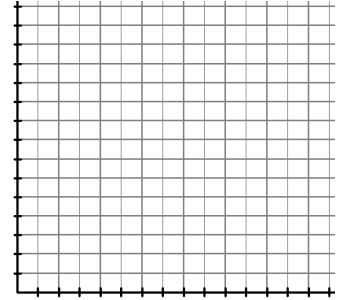
ALGEBRA

Write your questions here!

FRO YO! Make your own frozen yogurt!

weight (ounces)	Price ($)
2	1.00
5	2.50
7	3.50
9	4.50
12	6.00
14	7.00

INDEPENDENT VARIABLE =

DEPENDENT VARIABLE =

TRY IT!

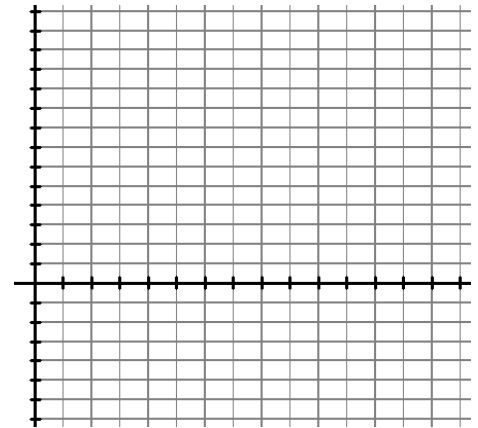The table shows the score of a player on the game show Jeopardy!

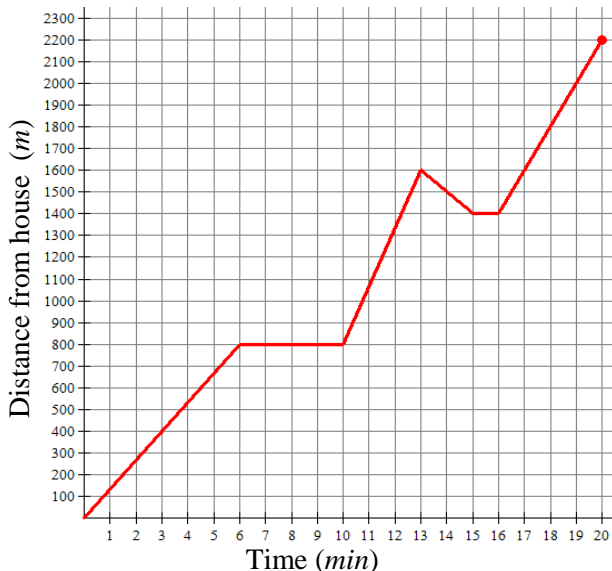| Time (*min*)	3	8	11	15	18	21	23	25
Score (*points*)	100	500	700	200	-300	-100	400	1200

Independent Variable

_____ = _____

Dependent Variable

_____ = _____

Running Man Mr. Brust likes to run to work. The table below shows the distance Mr. Brust is from his house over the course of his run.
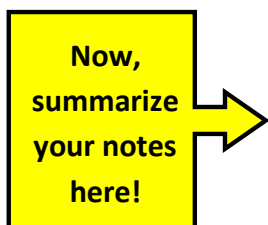
Intervals

_____	_____
(_____)	(_____)
3	
5	
7	
9	
	1100
	1600

Distance from house (*m*)

Time (*min*)

The point (18, 1800) means

STORY TIME Professor Splash set the world record with a 36 foot belly flop into a 1 foot pool of water. Sketch a graph of his height over time.

SUMMARY:

Now,
summarize
your notes
here!

1.1 Create and Analyze Graphs

PRACTICE

Identify the independent and dependent variable. Create and label a scatter plot. Answer the questions.

1. The area of a square is determined by the length of a side of that square as shown in the table below.
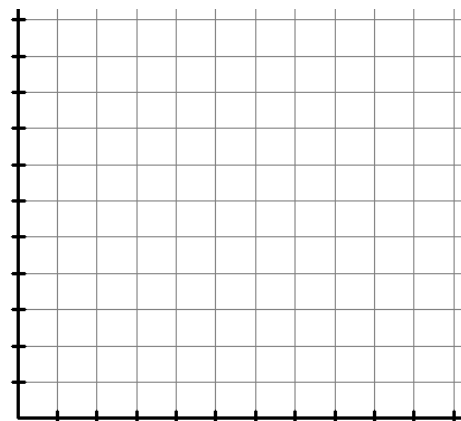
Side (cm)	Area (cm^2)
0	0
1	1
2	4
4	16
7	49
9	81

Independent Variable

_____ = _____

Dependent Variable

_____ = _____

a) What is the length of each side of a square that has an area of 36 cm^2 ?
Mark this point on the graph with a ▲.

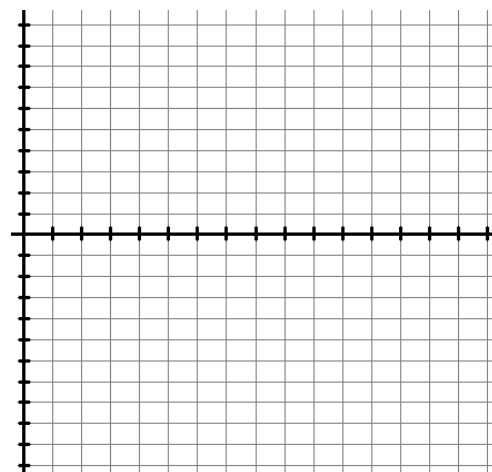b) What does the point $(7, 49)$ mean in this situation?

2. Generic High School Math Club is selling math t-shirts to raise money for new calculators.

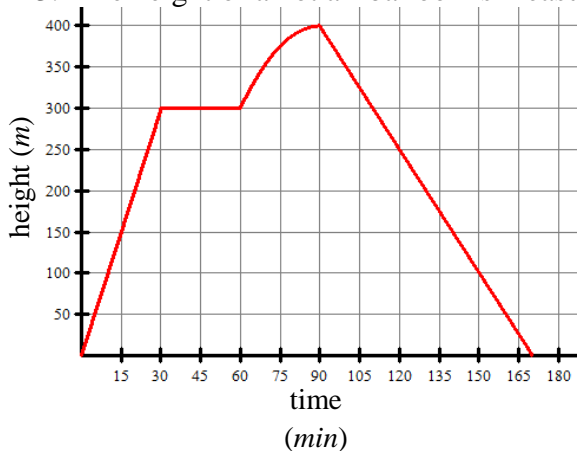| Shirts Sold (#)	Profit ($)
5	−40
10	−28
15	−16
20	−4
25	8
30	20

Independent Variable

____ = _____

Dependent Variable

____ = _____

a) Approximately how many shirts must be sold in order for the club to break even? Justify.

3. The height of a hot air balloon is measured over time.

height (m) vs time (min)

Independent Variable

____ = _____

Dependent Variable

____ = _____

____	____
(___)	(___)
120	
75	
	400
	150

a) What does the point $(135, 175)$ mean in this situation?
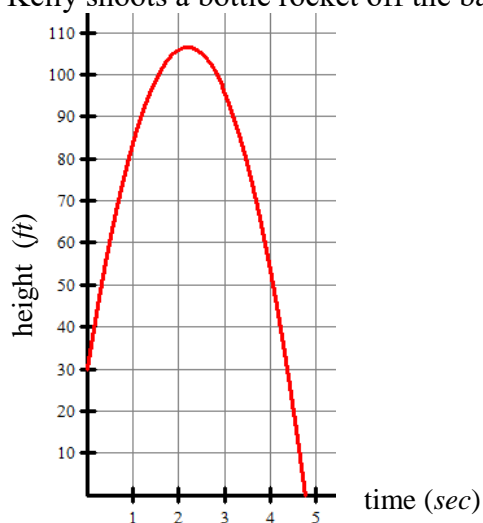
b) Describe the rate of change of the hot air balloon over the first 30 minutes.

c) Describe what is happening over the interval 30 minutes to 60 minutes.

d) What is the maximum height of the hot air balloon?

4. Mr. Kelly shoots a bottle rocket off the back deck of his house. The graph shows the rocket's height over time.

Independent Variable
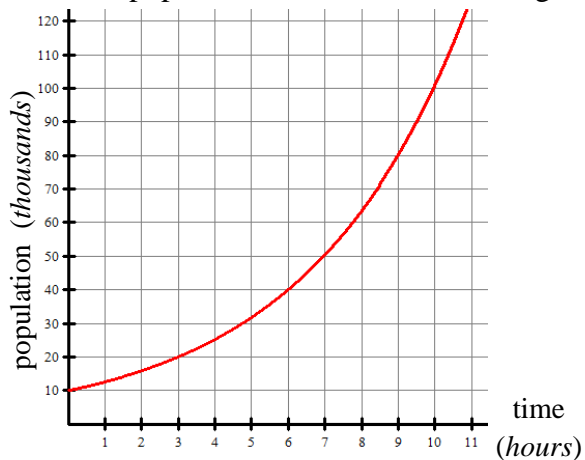
____ = _____

Dependent Variable

____ = _____

____ (___)	____ (___)
4	
1	
	20
	50

a) Use the graph to estimate how long the rocket is in the air.

b) Use the graph to estimate bottle rocket's maximum height.

c) How far off the ground is Mr. Kelly's deck?

5. The population of a certain bacteria grows over time as shown in the graph below.

Independent Variable

____ = _____

Dependent Variable

____ = _____

____ (___)	____ (___)
3	
6	
	100
	120

a) What does the point $(4, 25)$ mean in this situation?

SMP #6

b) What population did the bacteria start with?

c) When will the bacteria be 80,000 ?

d) How long does it take for the population of bacteria to double? Justify.

1. **Identify the independent and dependent variable. Create and label a scatter plot.**
   Ted's paycheck is determined by the number of hours worked as shown in the table below.
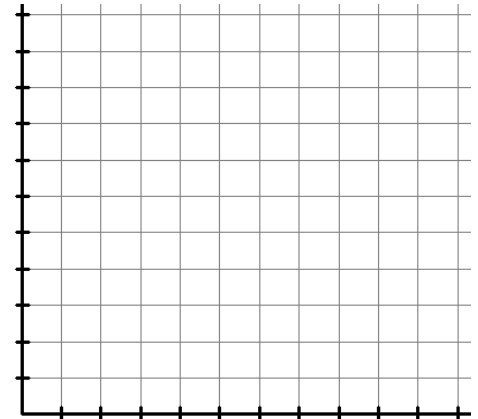
Time Worked (*hours*)	Paycheck (*dollars*)
10	80
18	144
22	176
26	208
32	256
38	304

Independent Variable

____ = _____

Dependent Variable

____ = _____

MULTIPLE CHOICE

2. The graph shows the temperature in a kiln while firing a piece of pottery. Over which time interval did the temperature in the kiln have the greatest rate of change?

   A) 0 to 1.5 hours

   B) 1.5 to 2.5 hours

   C) 2.5 to 4.65 hours

   D) 4.65 to 8.24 hours

   E) Cannot be determined from the graph

Temperature (°F) vs time (*hours*)
Points: (0, 250), (1.5, 1100), (2.5, 1350), (4.65, 1680), (8.24, 1920)
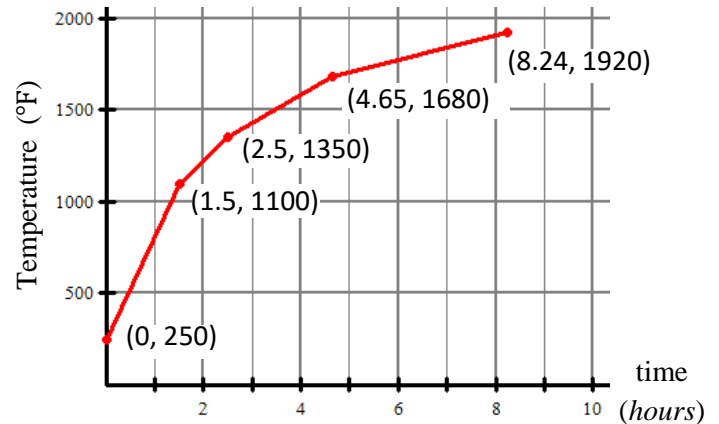
EXIT TICKET – Match the story to its corresponding table and graph.

STORY A: A certain bacteria starts with a population of 300 a doubles every hour.
STORY B: A certain bacteria starts with a population of 300 increases 200 every hour.
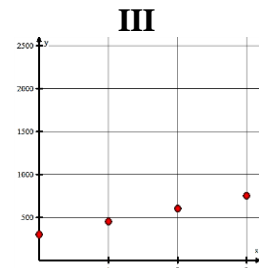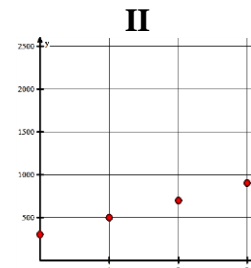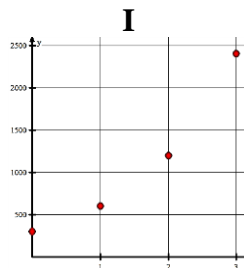**STORY C**: A certain bacteria starts with a population of 300 increases 450 every 3 hours.

TABLES

1

x	y
0	300
1	450
2	600
3	750

2

x	y
0	300
1	600
2	1200
3	2400

3

x	y
0	300
1	500
2	700
3	900

GRAPHS

I   II   III

(NOTE FOR GRAPHS: *x*-axis interval is 0-3 with a scale of 1, *y*-axis interval is 0-2500 with a scale of 500)

Story _____ matches table _____ which matches graph _____

Story _____ matches table _____ which matches graph _____

Story _____ matches table _____ which matches graph _____