

Comparing Functions

Name: _____

Date: _____ Period: _____

8.F.2: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).

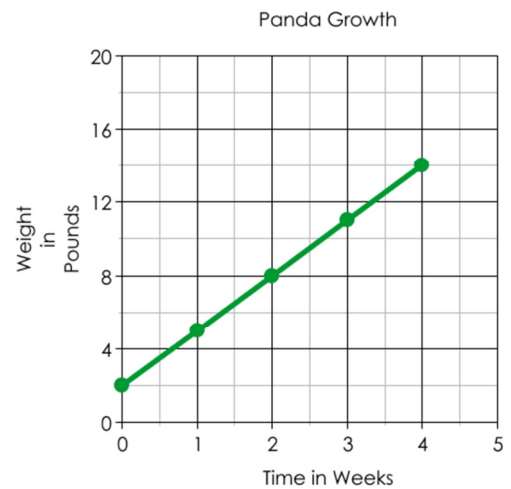
Read each situation, then answer the questions by analyzing and comparing the different linear situations.

1. The Metropolis Zoo recently celebrated the birth of two new baby pandas!

Mochi the panda cub has been measured and weighed each week since she was born.

Weeks	Weight
0	1
1	5
2	9
3	13

Mochi's brother is **Kappa**. His weight has been charted on the graph below.



- Which panda was heavier when they were born?
- Which panda is growing faster?
- Which panda will weigh more at five weeks?

2. Two contestants on Biggest Loser are Valerie and Oscar. Their weight loss progress is shown below.

Valerie's weight loss is shown by this function, where W is her weight in pounds and t is the time in weeks.

$$W = 235 - 2.5t$$

Oscar's weight loss is tracked in the table below.

Weeks	0	2	5	6
Weight	247	243	237	235

- Who weighed more at the beginning of the show?
- Who is losing weight faster?

3. Mr. Rich recently planted a crop of money trees in his garden.

A.

The first tree was five inches tall when planted. It has grown four inches every month since being planted.

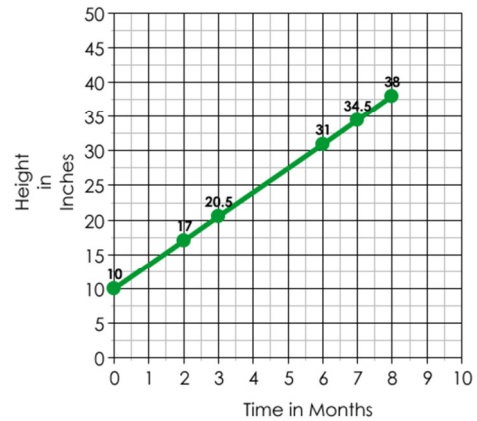
B.

Measurements were taken of the second tree and given below:

Months	0	2	3	5
Height	3	12	16.5	25.5

C.

Money Tree Growth



- Which of the trees is growing the fastest?
- Which tree was the tallest when it was first planted?
- Challenge: Which tree is the tallest after 6 months?

4. Tony is the best pizza deliveryman in the city. He has been offered jobs by all the best pizza places.

Bombinoes' Pizza is offering \$56 per shift and \$2.50 in commission for each pizza delivered.

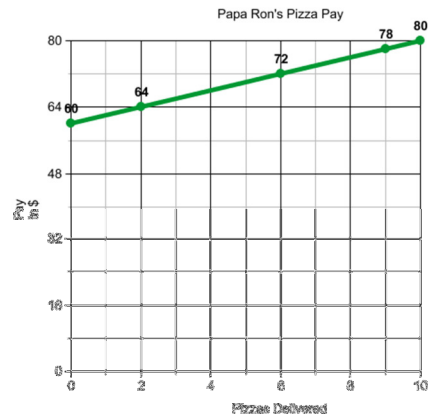
Little Squeezer's showed Tony a table of salaries.

Pizzas	0	2	4	10
Salary	48	54	60	78

Pizza Tent has given Tony his pay options in the following function. S represents Tony's salary, and p represents the number of pizzas he delivers.

$$S = 2.75p + 52$$

Papa Ron's made their offer in the form of this graph.



- Which company pays the best pay per shift?
- Which company pays the most per pizza?
- Challenge: If Tony is going to deliver at least 20 pizzas every night, which company should he work for?

Comparing Functions

Name: ANSWER KEY

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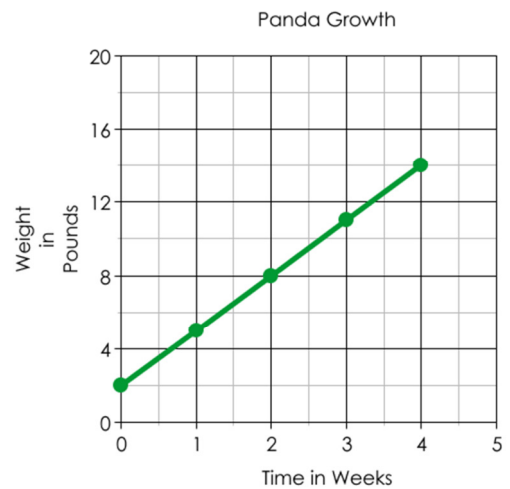
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1. The Metropolis Zoo recently celebrated the birth of two new baby pandas!

Mochi the panda cub has been measured and weighed each week since she was born.

Weeks	Weight
0	1
1	5
2	9
3	13

Mochi's brother is **Kappa**. His weight has been charted on the graph below.



- Which panda was heavier when they were born?
Kappa is heavier. He weighed 2 pounds at birth, while Mochi weighed only 1 pound.
- Which panda is growing faster?
Mochi is growing faster. She is gaining 4 pounds per week. Kappa is gaining 6 pounds per week.
- Which panda will weigh more at five weeks?
Mochi will weigh more. She will be up to 21 pounds. ($y = 4x + 1$) Kappa will only be up to 17 pounds. ($y = 3x + 2$).

2. Two contestants on Biggest Loser are Valerie and Oscar. Their weight loss progress is shown below.

Valerie's weight loss is shown by this function, where W is her weight in pounds and t is the time in weeks.

$$W = 235 - 2.5t$$

Oscar's weight loss is tracked in the table below.

Weeks	0	2	5	6
Weight	247	243	237	235

- Who weighed more at the beginning of the show?
Oscar weighed more. He weighed 247 pounds, while Valerie weighed 235 pounds.
- Who is losing weight faster?
Valerie is losing weight faster. She is losing 2.5 pounds per week while Oscar is only losing 2 per week.

3. Mr. Rich recently planted a crop of money trees in his garden.

A.

The first tree was five inches tall when planted. It has grown four inches every month since being planted.

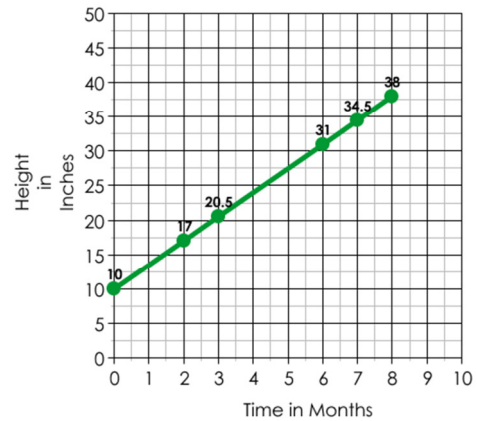
B.

Measurements were taken of the second tree and given below:

Months	0	2	3	5
Height	3	12	16.5	25.5

C.

Money Tree Growth



- Which of the trees is growing the fastest?
Tree B. It is growing 4.5 inches per month; Tree A grows $4 \frac{\text{in}}{\text{mo}}$ and Tree C grows $3.5 \frac{\text{in}}{\text{mo}}$.
- Which tree was the tallest when it was first planted?
Tree C. It was 10 inches tall when planted. Tree A was 5 inches, and Tree B was 3 inches.
- Challenge: Which tree is the tallest after 6 months?
Tree C. It will be 31 inches tall. Tree A will be 29 inches tall, and Tree B will be 30 inches tall.

4. Tony is the best pizza deliveryman in the city. He has been offered jobs by all the best pizza places.

Bombinoes' Pizza is offering \$56 per shift and \$2.50 in commission for each pizza delivered.

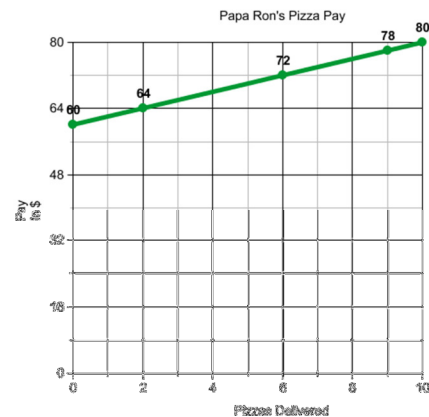
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Pizza Tent has given Tony his pay options in the following function. S represents Tony's salary, and p represents the number of pizzas he delivers.

$$S = 2.75p + 52$$

Papa Ron's made their offer in the form of this graph.



- Which company pays the best pay per shift?
Papa Ron's pays the best flat salary at \$60 per shift.
- Which company pays the most per pizza?
Little Squeezer's pays the most per pizza at \$3 per pizza.
- Challenge: If Tony is going to deliver at least 20 pizzas every night, which company should he work for? He should work for **Little Squeezer's**. He will earn \$108 for delivering 20 pizzas. For 20 pizzas, Bombinoes' would pay \$106, Pizza Tent would pay \$107, and Papa Ron's would pay \$100. After this point **Little Squeezer's** will always be his best choice because it has the highest pay per pizza.