

8.F.2

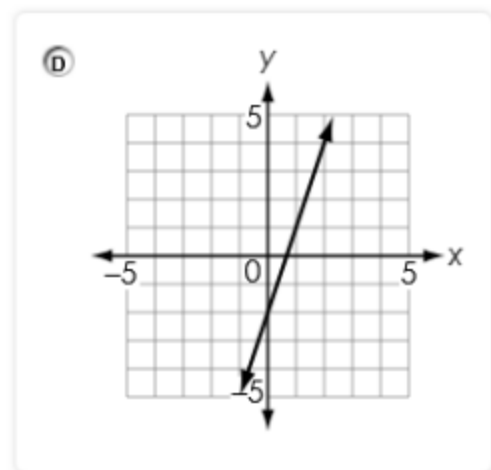
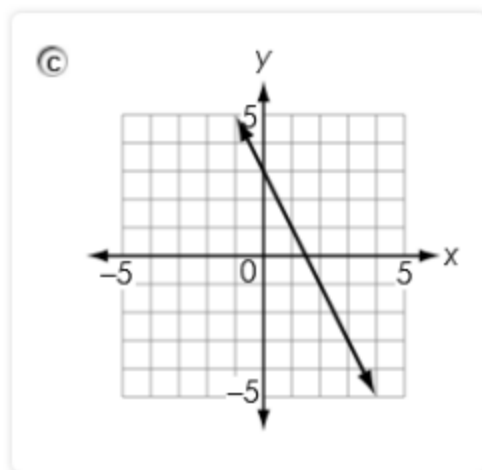
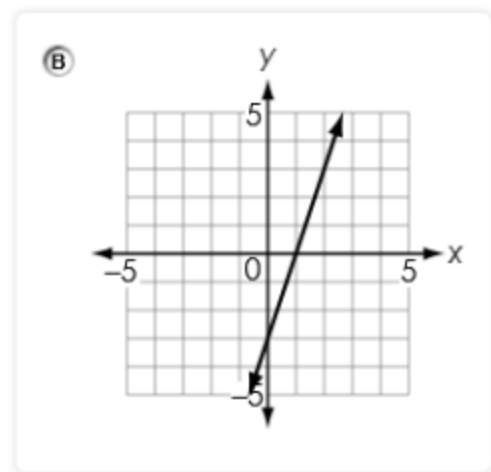
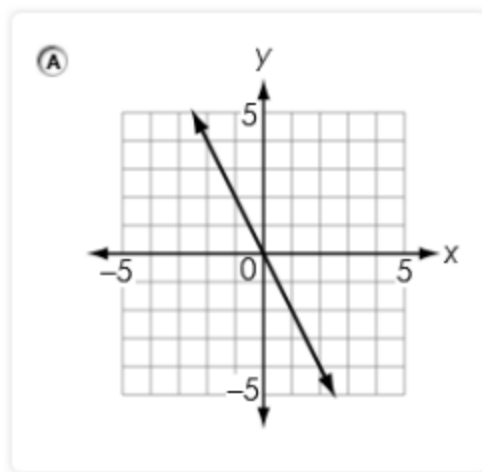
Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

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OH.2025.Q43

Function A is represented by the equation $y = 3x - 2$. The graph of function B has a y -intercept with a value less than the y -intercept of function A.

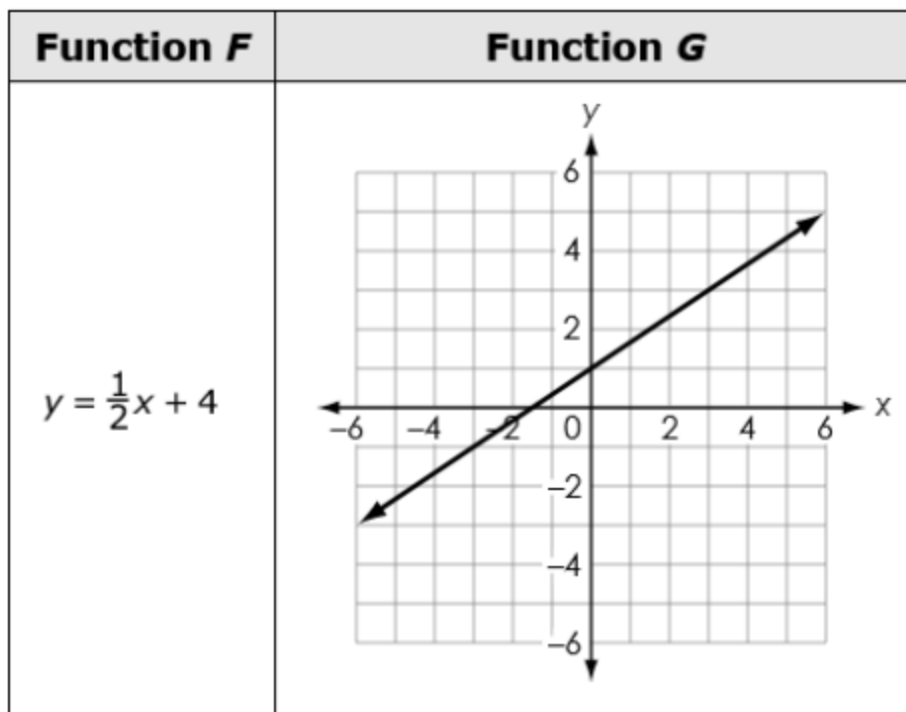
Which graph could represent function B?



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OH.2024.Q5

Two linear functions are shown.



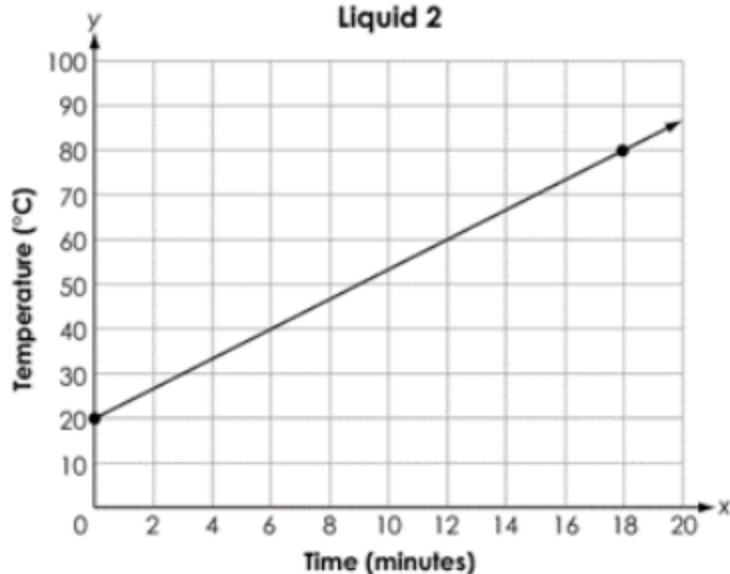
Select the **two** correct statements about functions F and G .

- ☐ Function F has a greater y-intercept than Function G .
- ☐ Function G has a greater y-intercept than Function F .
- ☐ Function F has a greater rate of change than Function G .
- ☐ Function G has a greater rate of change than Function F .
- ☐ Function F has the same rate of change as Function G .

Liquid 1

Time (minutes)	Temperature ($^{\circ}\text{C}$)
0	18
5	35.5
10	53
15	70.5

Liquid 2



A scientist recorded the temperatures of two different liquids as they were heated. The results are shown in the table and graph.

Which statement is true?

- ☐ A Liquid 1 heated at a slower rate than Liquid 2 and had a higher starting temperature than Liquid 2.
- ☐ B Liquid 1 heated at a slower rate than Liquid 2 and had a lower starting temperature than Liquid 2.
- ☐ C Liquid 1 heated at a faster rate than Liquid 2 and had a higher starting temperature than Liquid 2.
- ☐ D Liquid 1 heated at a faster rate than Liquid 2 and had a lower starting temperature than Liquid 2.

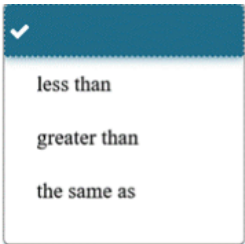
Two linear functions are given.

Function 1:

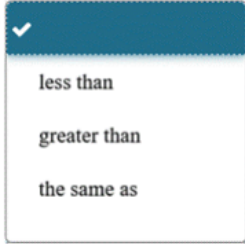
x	0	1	2	3
y	351	364	377	390

Function 2: $y = 9x + 396$

Select a phrase for each blank box to complete the statements that correctly compare the two functions.

The slope of Function 1 is  the slope of Function 2.

less than
greater than
the same as

The y-intercept of Function 1 is  the y-intercept of Function 2.

less than
greater than
the same as

Steven and Mark are each filling their own bucket with water.

- Steven begins with 8 cups of water in his bucket, and fills the bucket at a rate of 2 cups per second.
- The number of cups of water, w , in Mark's bucket after t seconds is represented by the equation $w = 8t + 1$.

Which statement is true?

- ☐ Ⓐ Mark begins with more cups of water in his bucket than Steven.
- ☐ Ⓑ Mark begins with the same amount of water as Steven.
- ☐ Ⓒ Mark fills his bucket at a faster rate than Steven.
- ☐ Ⓓ Mark fills his bucket at the same rate as Steven.

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OH.2018.Q6

Two plumbers charge an initial fee and an hourly rate.

The equation $y = 100 + 30x$ models plumber A's fee, where y is the total charge, in dollars, and x is the number of hours worked.

The table shown represents plumber B's total charge for different numbers of hours.

Plumber B	
Hours	Total Charges (\$)
1	105
2	160
3	215

Which statement about the plumbers' charges is true?

- ☐ Ⓐ The two plumbers have equal hourly rates.
- ☐ Ⓑ Plumber A has a greater initial fee.
- ☐ Ⓒ Plumber A has a greater hourly rate.
- ☐ Ⓓ The two plumbers have equal initial fees.

8.F.2

OH.2017.Q4

Pumps are used to empty water from two tanks, tank P and tank Q.

Tank P begins with 65 gallons of water and empties at a rate of 6.5 gallons per minute. The amount of water in tank Q is represented by the equation $y = 63.5 - 5.25x$, where x is the number of minutes the pump has been emptying the tank.

Which statement is true?

- Ⓐ Tank P empties at a faster rate than tank Q and had a lesser starting amount than tank Q.
- Ⓑ Tank P empties at a faster rate than tank Q and had a greater starting amount than tank Q.
- Ⓒ Tank P empties at a slower rate than tank Q and had a lesser starting amount than tank Q.
- Ⓓ Tank P empties at a slower rate than tank Q and had a greater starting amount than tank Q.

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OH.2017.Q50

Lyla and Dwayne each sell tickets at a concert. They start selling the tickets at the same time.

- Lyla starts with 500 tickets and sells them at an average rate of 5 tickets per minute.
- The number of tickets, t , Dwayne has left after m minutes is represented in the table shown.

m	t
0	600
4	580
8	560
12	540

Which statement is true?

- Ⓐ Dwayne's average rate of tickets sold per minute is higher than Lyla's average rate.
- Ⓑ Lyla's average rate of tickets sold per minute is higher than Dwayne's average rate.
- Ⓒ Dwayne begins with more tickets than Lyla.
- Ⓓ Lyla begins with more tickets than Dwayne.

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OH.2016.Q7

Charlie and Susan are planning a party for 10 people. Charlie finds a location that charges an initial fee of \$20 plus \$25 per person.

Susan finds a location whose rental fee is represented by the equation $y = 15x + 100$, where x is the number of people in attendance and y is the total cost.

Select all the statements that are true.

- ☐ Charlie's location is a cheaper location.
- ☐ Susan's location is cheaper for 10 people.
- ☐ The charge for each additional person is greater for Susan's location.
- ☐ The charge for each additional person is greater for Charlie's location.
- ☐ If the number of people at the party changes to 12, the total cost at each location is the same.

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OH.2016.Q7 Parallel #1

Jayden and Brock are planning a dance for 25 people. Jayden finds a location that charges an initial rental fee of \$30 plus \$15 per person.

Brock finds a location whose rental fee is represented by the equation $y = 20x + 45$, where x is the number of people in attendance and y is the total cost.

Select all the statements that are true.

- ☐ Jayden's location is a cheaper location.
- ☐ Brock's location is cheaper for 25 people.
- ☐ The charge for each additional person is greater for Brock's location.
- ☐ The charge for each additional person is greater for Jayden's location.
- ☐ If the number of people at the party changes to 7, the total cost at each location is the same.

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OH.2016.Q7 Parallel #2

Brenden and Ryley are planning a party for 15 people. Brenden finds a location that charges an initial rental fee of \$15 plus \$5 per person.

Ryley finds a location whose rental fee is represented by the equation $y = 10x + 10$, where x is the number of people in attendance and y is the total cost.

Select all the statements that are true.

- ☐ Ryley's location is a cheaper location.
- ☐ Brenden's location is cheaper for 15 people.
- ☐ The charge for each additional person is greater for Ryley's location.
- ☐ The charge for each additional person is greater for Brenden's location.
- ☐ If the number of people at the party changes to 1, the total cost at each location is the same.

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OH.2016.Q7 Parallel #3

Logan and Lillie are planning a party for 40 people. Logan finds a location that charges an initial rental fee of \$20 plus \$10 per person.

Lillie finds a location whose rental fee is represented by the equation $y = 15x + 5$, where x is the number of people in attendance and y is the total cost.

Select all the statements that are true.

- ☐ Logan's location is a cheaper location.
- ☐ Lillie's location is cheaper for 40 people.
- ☐ The charge for each additional person is greater for Logan's location.
- ☐ The charge for each additional person is greater for Lillie's location.
- ☐ If the number of people at the party changes to 10, the total cost at each location is the same.

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OH.2016.Q12

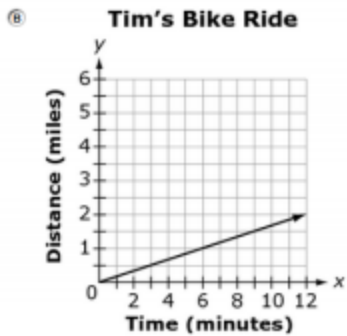
Brian and Tim both ride their bikes at a constant speed and leave from the same location. Brian's ride times are shown in the table.

Brian's Bike Ride

Time (minutes)	Distance (miles)
8	1
16	2
24	3

Tim rides faster than Brian.

Which graph could represent Tim's bike ride?

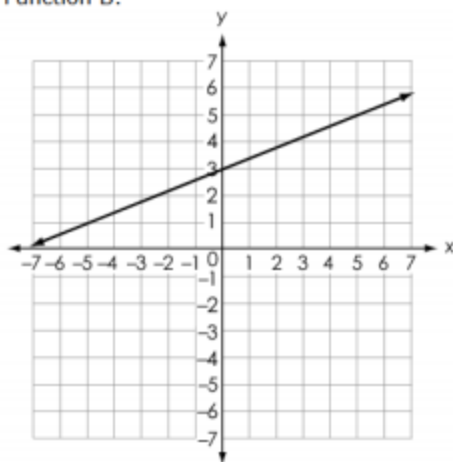


A table of values for Function A and the graph of Function B are shown.

Function A:

x	y
-4	-2
2	2.5
4	4

Function B:



Create an equation for a third linear function with a rate of change that is between the rates of change for Function A and Function B.