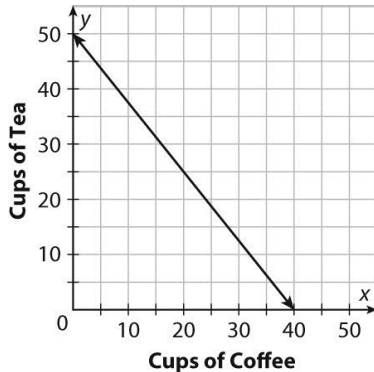


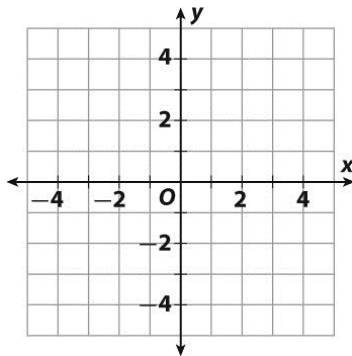
1. The graph shows the daily sales goal of a coffee shop. If the employees sell 20 cups of coffee, how many cups of tea must they sell to meet their goal?



- A 20
- B 25
- C 40
- D 50

2. The school band will sell pizzas to raise money for new uniforms. The supplier charges \$100 plus \$4 per pizza. If the band members sell the pizzas for \$8 each, how many pizzas will they have to sell to make a profit?

3. Graph the solutions to the inequality  $y \geq \frac{3}{4}x - 1$ .

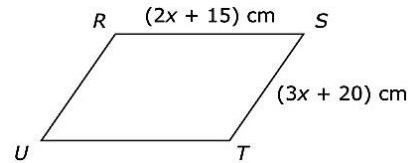


4. Solve  $x - 3y = 24 - 5x$  for  $y$

5. Solve and graph your solution:  
 $\frac{1}{6}(6x + 12) - x \leq -10x + 32$



6.  $RSTU$  is a parallelogram. The perimeter of the parallelogram is 50 centimeters. What is the value of  $x$ ?



- A -5
- B -2
- C 3
- D 12

7. A cup is filled with 100 milliliters of water. Every second, 2 milliliters of water are poured out of the cup. Write a function  $w(t)$  that shows the amount of water in the cup after  $t$  seconds.

8. What is the value of  $f(x) = x^2 - 6$  when  $x = -2$ ?

9. What is the slope of a line that contains the points  $(-4, -8)$  and  $(2, -2)$ ?

- A  $\frac{5}{3}$
- B -1
- C  $-\frac{5}{3}$
- D 1

10. Which best describes the solutions to  $-12x \leq 90$ ?

- A all numbers less than  $-7.5$
- B all numbers greater than  $-7.5$
- C all numbers less than or equal to  $-7.5$
- D all numbers greater than or equal to  $-7.5$

11. Which functions have a rate of change **greater than** the function represented in the table?

**Circle all that apply**

<b>x</b>	1	2	3	4
<b>f(x)</b>	-2	3	8	13

A  $y = \frac{11}{2}x + 5$

B  $-3x + \frac{1}{2}y = 3$

C  $\frac{1}{9}y = \frac{2}{3}x$

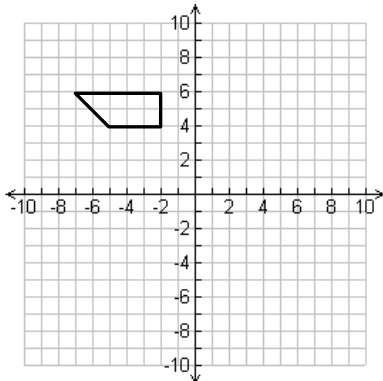
D  $y = 4.5x - 10$

12. The ordered pairs  $(-3, \frac{1}{2})$  and  $(2, 16)$  are solutions to an exponential equation. What is the equation?

A  $y = 4x$       C  $y = 4(2)^x$

B  $y = 4^x$       D  $y = 32(4)^x$

13. Reflect the trapezoid over  $y = x$ . Then rotate 90 degrees clockwise.



14. Suppose 670,000 people live in Mathland in 2005. The population increases by 2% each year.

a. Write an exponential function to model the situation.

b. If the pattern continues, how many people will be in Mathland in 2009?

15. The number of deer in a forest can be modeled by the function  $f(t) = 100(.985)^t$ , where  $t$  is the number of years. Describe what is happening with the deer population, using both numbers from the function in your explanation.

16. David deposits \$923 into a savings account that gives 4.8% interest per year, compounded monthly.

a. Write a function  $D(t)$  to describe this situation.

b. How much money will David have in his account after 3 years? Round to the nearest cent.

17. What is the fifth term of the sequence defined by the recursive rule  $f(1) = 2, f(n) = 2f(n - 1) + 1$

18. Write an explicit formula for a geometric sequence whose third term is 200 and fourth term is 800.

19. Is the relation shown in the table a function? Explain how you know.

<b>x</b>	-1	3	5	7
<b>y</b>	4	4	5	-1

20. Consider the functions  $f(x), g(x),$  and  $h(x)$ .

$$f(x) = 500x^2$$

$$g(x) = 500x$$

$$h(x) = (5)^x$$

Order them from greatest to least based on the value of the function as  $x \rightarrow \infty$

21. Kiptyn works as a math tutor and as a chef. He earns \$20 per hour as a chef and \$25 per hour as a tutor. Last week, he worked for a total of 30 hours and earned a total of \$690. How long did he work at each job?