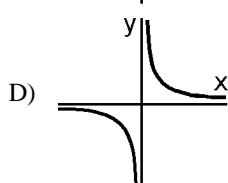
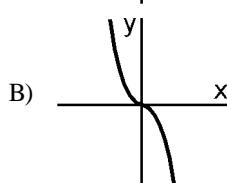
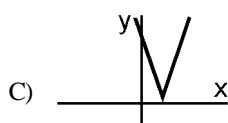
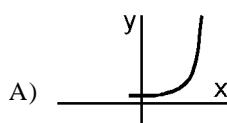
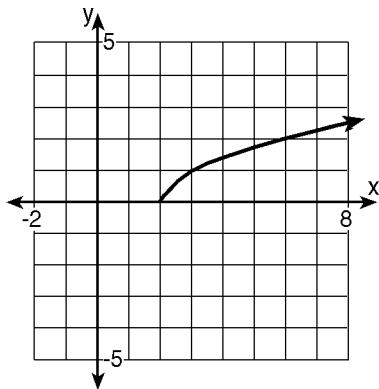


Name: _____

- 1) Which of the following best represents the graph of an absolute value function?



- 2) Which one of the following equations could produce the graph shown?



A) $y = \sqrt{x - 2}$

C) $y = -\sqrt{x - 2}$

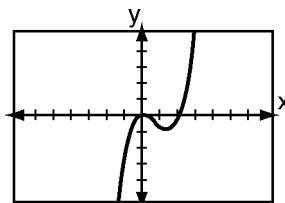
B) $y = \sqrt{2 - x}$

D) $y = -\sqrt{2 - x}$

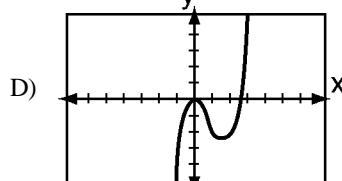
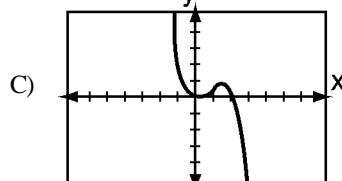
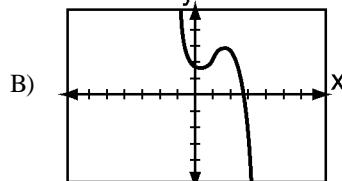
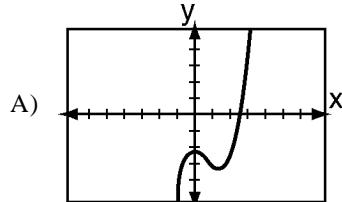
- 3) What will be the effect on the graph of $y = |x|$ if y is replaced with $-y$?

- A) a horizontal shift of 1 unit to the left
 B) a flip over the x -axis
 C) no change
 D) a vertical shift

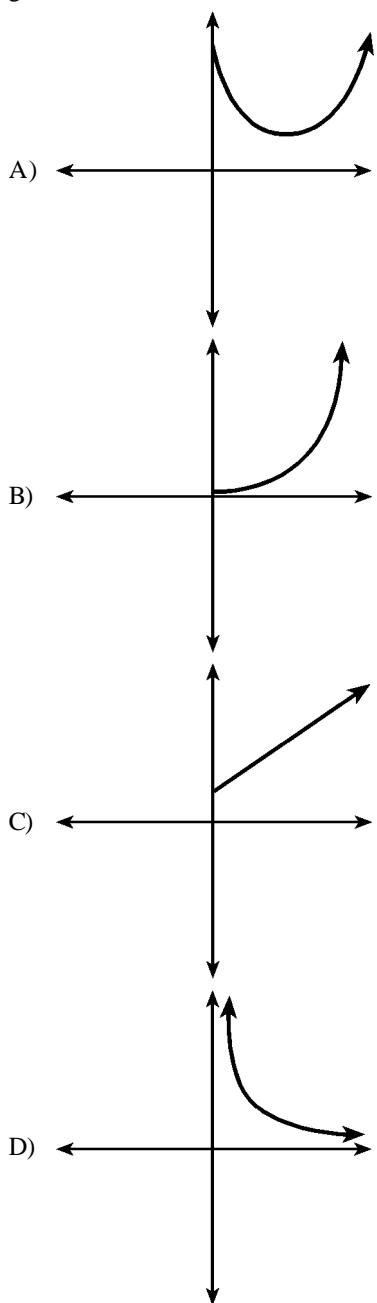
- 4) The accompanying graph represents the equation $y = f(x)$.



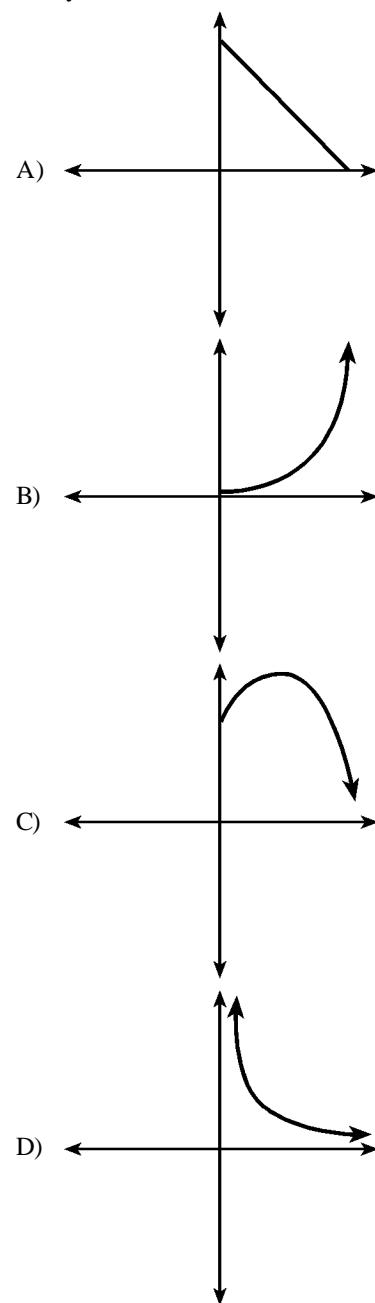
Which of the following graphs represents $g(x)$, if $g(x) = -f(x)$?



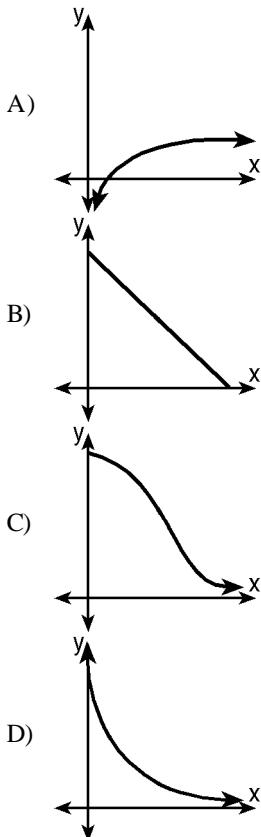
- 5) Which of the following graphs represent an exponential growth model?



- 6) Which of the following graphs represent an exponential decay model?



- 7) The strength of a medication over time is represented by the equation $y = 200(1.5)^{-x}$, where x represents the number of hours since the medication was taken and y represents the number of micrograms per millimeter left in the blood. Which graph *best* represents this relationship?



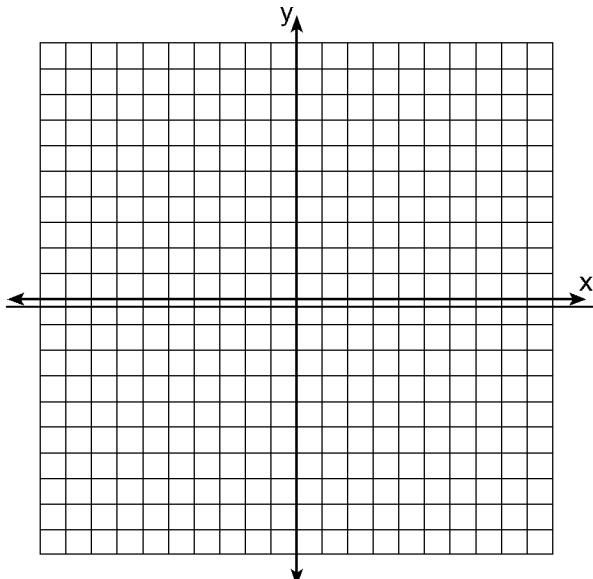
- 11) Which equation models the data in the accompanying table?

Time in Hours (x)	0	1	2	3	4	5	6
Population (y)	5	10	20	40	80	160	320

- A) $y = 2^x$ C) $y = 2x$
 B) $y = 2x + 5$ D) $y = 5(2^x)$

- 12) On the grid provided, sketch a graph of the given function:

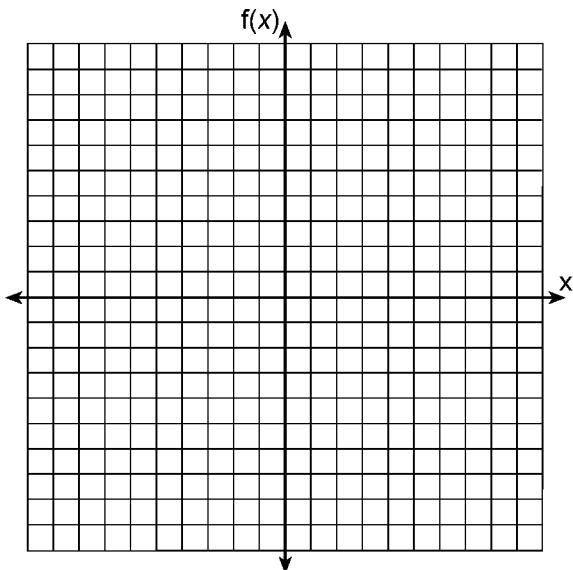
$$f(x) = (x - 2)^3$$



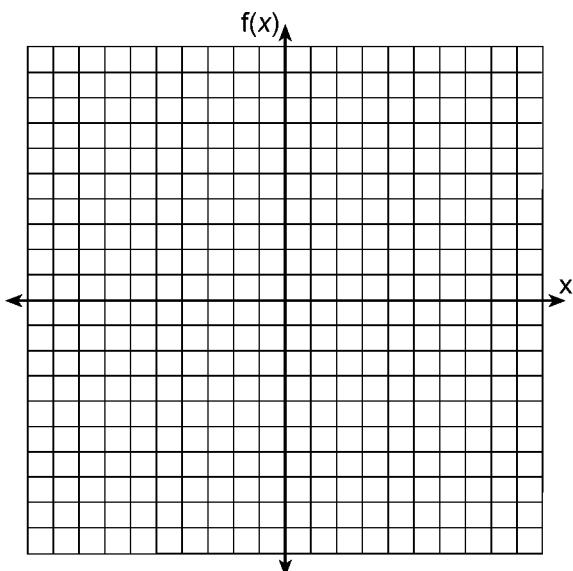
Questions 13 through 15 refer to the following:

Graph the given absolute value function on a coordinate grid.
State the domain and the range of the function.

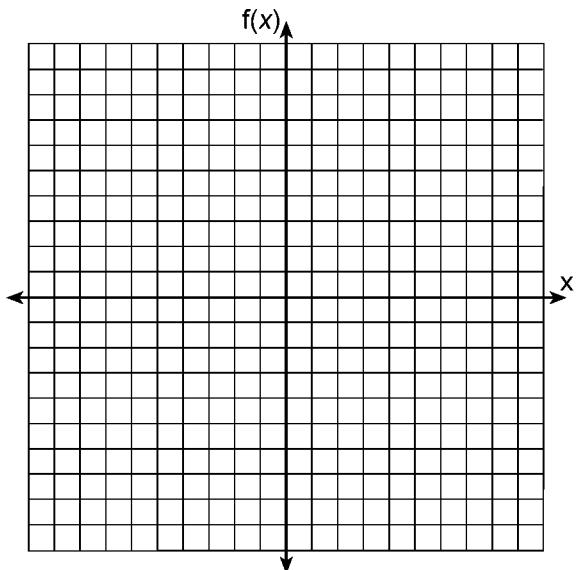
13) $f(x) = |x|$

*Domain:* _____*Range:* _____

14) $f(x) = -|x|$

*Domain:* _____*Range:* _____

15) $f(x) = |-x|$

*Domain:* _____*Range:* _____

- 16) Write a function to model exponential growth with the indicated initial value and growth rate:

Initial value = 6, growth rate = 15%

Answer: _____

- 17) Since January 1980, the population of the city of Brownville has grown according to the mathematical model $y(x) = 720,500(1.022)^x$, where x is the number of years since January 1980.

Part A

Explain what the numbers 720,500 and 1.022 represent in this model.

Part B

If this trend continues, use a calculator to predict the year during which the population of Brownville will exceed 1,540,000.

Justify your results in the space below.

Answer: Year _____

- 18) The half-life of carbon-14 is 5,700 years. If 20 grams are present now, how much will remain in 11,400 years?

Show your work.

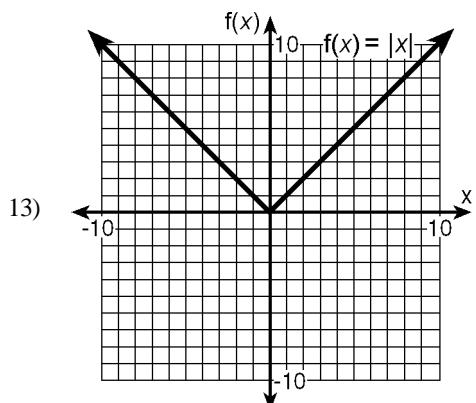
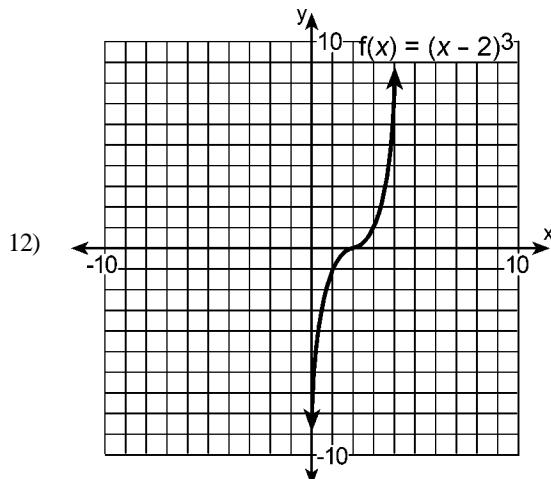
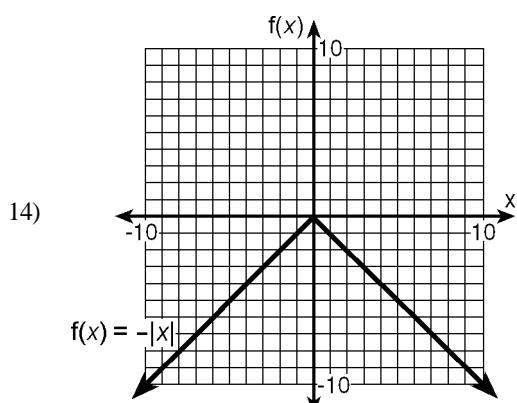
Answer: _____ grams

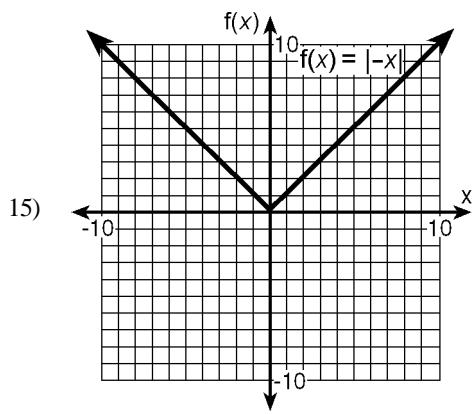
- 19) Explain how the graphs of $y = f(x)$ and $y = -f(-x)$ relate to each other on the coordinate plane.

1) C 2) A 3) B 4) C 5) B

6) D 7) D 8) B 9) A 10) C

11) D

Domain: $(-\infty, \infty)$ Range: $[0, \infty)$ Domain: $(-\infty, \infty)$ Range: $(-\infty, 0]$



Domain: $(-\infty, \infty)$

Range: $[0, \infty)$

- 16) SAMPLE ANSWER: $f(t) = 6(1.15)^t$

- 17) Part A: 720,500 is the initial population in January 1980 and 1.022 represents a growth rate of 2.2%.;
Part B: 2015

SAMPLE ANSWER: $y(34) = 720,500(1.022)^{34} = 1,509,956.522$; $y(35) = 720,500(1.022)^{35} = 1,543,175.565$; $1980 + 35 = 2015$

- 18) 5 grams

- 19) The graph of $-f(-x)$ is the image of $f(x)$ after a reflection in the origin.