

Different Representations of Functions

Decide if the situation is modeling: Linear, Quadratic, Exponential, or something Other. Then explain why with 1 sentence.

- 1) The population of a town is decreasing at a rate of 1.5% per year.

- 2) Each point on a graph is exactly $\frac{2}{5}$ of the previous point.

- 3) The average annual cost of car insurance in the Philippines is initially 50,000 Philippine pesos. Each year it decreases by 4,000 pesos.

- 4) A person starts off a race increasing their speed at a constant rate, then plateaus their speed for the majority of the race, then speeds up at the end once the finish line is in sight.

- 5) The area of a poster with length $(x - 5)$ inches and width $(x + 1)$ inches.

- 6) Your cell phone plan charges you \$35 per month (just to have an active phone plan) plus \$0.25 per megabyte of data you use.

- 7) You have received a new job! The company will start you with \$35,000 but you will receive a 10% raise every year that you continue employment with them.

- 8) A rocket is launched from the ground and lands in a field 50 yards away. *Think about the path the rocket takes.

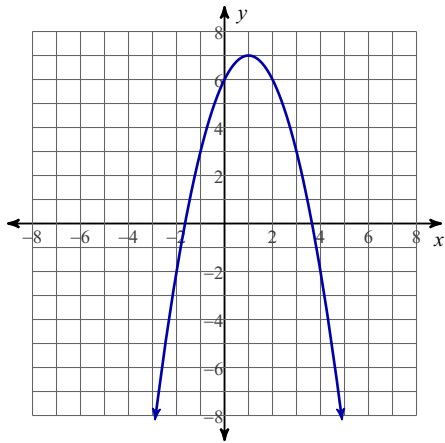
9) $y = \frac{4}{x}$

10) $y = 1 - x^2$

11) $y = \frac{4}{3}x$

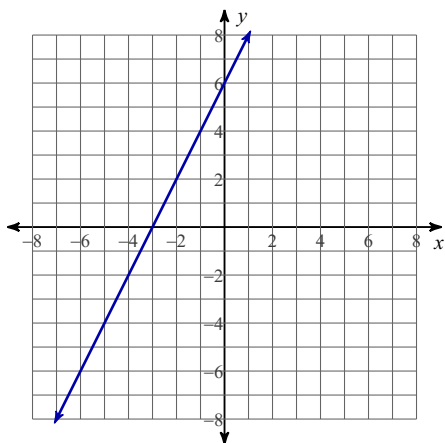
12) $x:$ -2 -1 0 1 2 3
 $y:$ 25 16 9 4 1 0

13)



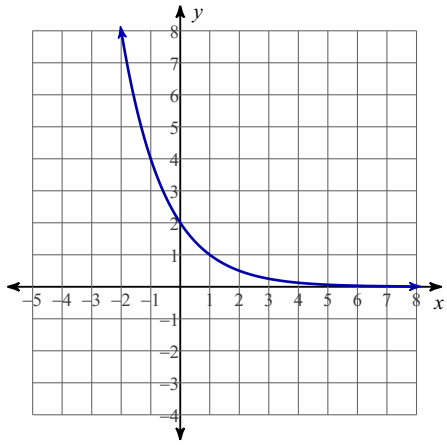
14) Lee has \$25 withheld from his paycheck every week to pay for his subway pass.

15)



16) Jose owes his brother \$500. He has promised to pay half of what he owes each week until the debt is paid.

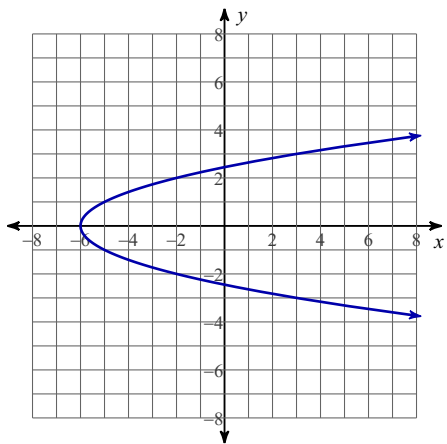
17)



18) x : -2 -1 0 1 2 3

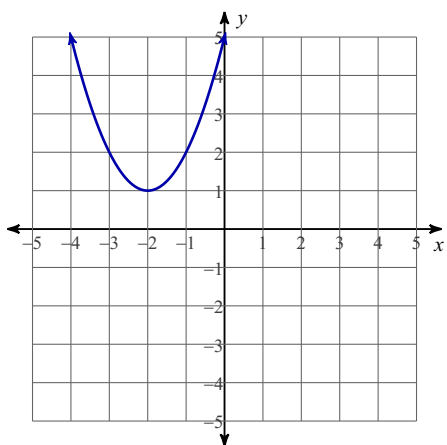
y : 12 6 3 1.5 0.75 0.375

19)



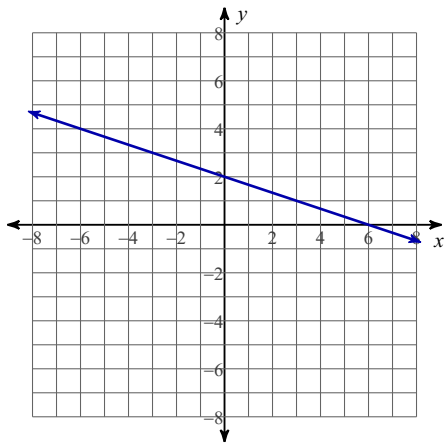
20) $y + x = 4x + 5$

21)



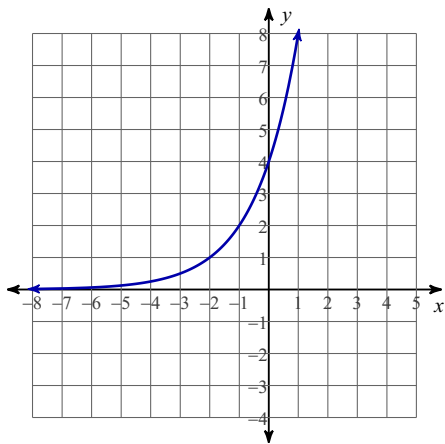
22) $y = 3(x - 5)^2 - 9$

23)



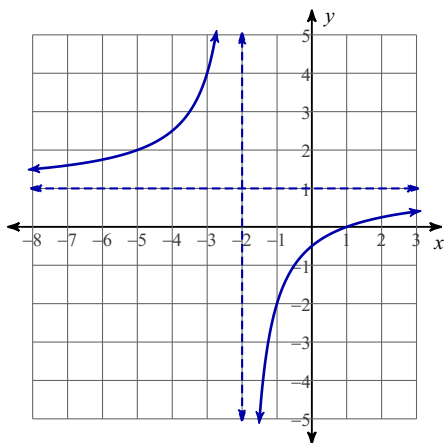
$$24) y = 5 \cdot 1.26^x$$

25)



$$26) \begin{array}{l} x: \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \\ y: \quad -3 \quad 4 \quad 5 \quad 6 \quad 13 \quad 32 \end{array}$$

27)



$$28) y = 3|x + 5| - 7$$