### Lesson 11 Practice Problems

1. Select **all** true statements about the graph that represents $y=2x(x−11)$.
	1. Its $x$-intercepts are at $(-2,0)$ and $(11,0)$.
	2. Its $x$-intercepts are at $(0,0)$ and $(11,0)$.
	3. Its $x$-intercepts are at $(2,0)$ and $(-11,0)$.
	4. It has only one $x$-intercept.
	5. The $x$-coordinate of its vertex is -4.5.
	6. The $x$-coordinate of its vertex is 11.
	7. The $x$-coordinate of its vertex is 4.5.
	8. The $x$-coordinate of its vertex is 5.5.
2. Select **all** equations whose graphs have a vertex with $x$-coordinate 2.
	1. $y=(x−2)(x−4)$
	2. $y=(x−2)(x+2)$
	3. $y=(x−1)(x−3)$
	4. $y=x(x+4)$
	5. $y=x(x−4)$
3. Determine the $x$-intercepts and the $x$-coordinate of the vertex of the graph that represents each equation.

|  |  |  |
| --- | --- | --- |
| * **equation**
 | * $x$**-intercepts**
 | * $x$**-coordinate of the vertex**
 |
| * $y=x(x−2)$
 | *
 | *
 |
| * $y=(x−4)(x+5)$
 | *
 | *
 |
| * $y=-5x(3−x)$
 | *
 | *
 |

1. Which one is the graph of the equation $y=(x−3)(x+5)$?
* Graph A
* 
* Graph B
* 
* Graph C
* 
* Graph D
* 
	1. Graph A
	2. Graph B
	3. Graph C
	4. Graph D
	5. What are the $x$-intercepts of the graph of $y=(x−2)(x−4)$?
	6. Find the coordinates of another point on the graph. Show your reasoning.
	7. Sketch a graph of the equation $y=(x−2)(x−4)$.
1. A company sells calculators. If the price of the calculator in dollars is $p$, the company estimates that it will sell $10,​000−120p$ calculators.
* Write an expression that represents the revenue in dollars from selling calculators if a calculator is priced at $p$ dollars.
* (From Unit 6, Lesson 7.)
1. Is $(s+t)^{2}$ equivalent to $s^{2}+2st+t^{2}$? Explain or show your reasoning.
* (From Unit 6, Lesson 8.)
1. Tyler is shopping for a truck. He found two trucks that he likes. One truck sells for $7,200. A slightly older truck sells for 15% less. How much does the older truck cost?
* (From Unit 5, Lesson 14.)
1. Here are graphs of two exponential functions, $f$ and $g$.
* The function $f$ is given by $f(x)=100⋅2^{x}$ while $g$ is given by $g(x)=a⋅b^{x}$.
* Based on the graphs of the functions, what can you conclude about $a$ and $b$?
* 
* (From Unit 5, Lesson 13.)
1. Suppose $G$ takes a student’s grade and gives a student’s name as the output. Explain why $G$ is not a function.
* (From Unit 4, Lesson 2.)



© CC BY 2019 by Illustrative Mathematics®