### Lesson 21 Practice Problems

1. Match each expression to an equivalent expression.
	1. $\sqrt{5}\pm \sqrt{3}$
	2. $1\pm \sqrt{3}$
	3. $\sqrt{3}\pm 1$
	4. $5\pm -2$
	5. $-3\pm -3$
	6. 3 and 7
	7. $\sqrt{5}+\sqrt{3}$ and $\sqrt{5}−\sqrt{3}$
	8. -6 and 0
	9. $\sqrt{3}+1$ and $\sqrt{3}−1$
	10. $1+\sqrt{3}$ and $1−\sqrt{3}$
* (From Unit 7, Lesson 15.)
1. Consider the statement: "An irrational number multiplied by an irrational number always makes an irrational product."
* Select **all** the examples that show that this statement is false.
	1. $\sqrt{4}⋅\sqrt{5}$
	2. $\sqrt{4}⋅\sqrt{4}$
	3. $\sqrt{7}⋅\sqrt{7}$
	4. $\frac{1}{\sqrt{5}}⋅\sqrt{5}$
	5. $\sqrt{0}⋅\sqrt{7}$
	6. $-\sqrt{5}⋅\sqrt{5}$
	7. $\sqrt{5}⋅\sqrt{7}$
	8. Where is the vertex of the graph that represents $y=\left(x−3\right)^{2}+5$?
	9. Does the graph open up or down? Explain how you know.
* (From Unit 6, Lesson 15.)
1. Here are the solutions to some quadratic equations. Decide if the solutions are rational or irrational.
* $3\pm \sqrt{2}$
* $\sqrt{9}\pm 1$
* $\frac{1}{2}\pm \frac{3}{2}$
* $10\pm 0.3$
* $\frac{1\pm \sqrt{8}}{2}$
* $-7\pm \sqrt{\frac{4}{9}}$
*
*
1. Find an example that shows that the statement is false.
	1. An irrational number multiplied by an irrational number always makes an irrational product.
	2. A rational number multiplied by an irrational number never gives a rational product.
	3. Adding an irrational number to an irrational number always gives an irrational sum.
2. Which equation is equivalent to $x^{2}−3x=\frac{7}{4}$ but has a perfect square on one side?
	1. $x^{2}−3x+3=\frac{19}{4}$
	2. $x^{2}−3x+\frac{3}{4}=\frac{10}{4}$
	3. $x^{2}−3x+\frac{9}{4}=\frac{16}{4}$
	4. $x^{2}−3x+\frac{9}{4}=\frac{7}{4}$
* (From Unit 7, Lesson 13.)
1. A student who used the quadratic formula to solve $2x^{2}−8x=2$ said that the solutions are $x=2+\sqrt{5}$ and $x=2−\sqrt{5}$.
	1. What equations can we graph to check those solutions? What features of the graph do we analyze?
	2. How do we look for $2+\sqrt{5}$ and $2−\sqrt{5}$ on a graph?
* (From Unit 7, Lesson 18.)
1. Here are 4 graphs. Match each graph with a quadratic equation that it represents.
* Graph A
* 
* Graph B
* 
* Graph C
* 
* Graph D
* 
	1. Graph A
	2. Graph B
	3. Graph C
	4. Graph D
	5. $y=\left(x+4\right)^{2}−3$
	6. $y=\left(x−4\right)^{2}−3$
	7. $y=\left(x+4\right)^{2}+3$
	8. $y=\left(x−4\right)^{2}+3$
* (From Unit 6, Lesson 15.)



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