### Lesson 15 Practice Problems

1. Solve each equation and write the solutions using $\pm $ notation.
	1. $x^{2}=144$
	2. $x^{2}=5$
	3. $4x^{2}=28$
	4. $x^{2}=\frac{25}{4}$
	5. $2x^{2}=22$
	6. $7x^{2}=16$
2. Match each expression to an equivalent expression.
	1. $4\pm 1$
	2. $10\pm \sqrt{4}$
	3. $-6\pm 11$
	4. $4\pm \sqrt{1}0$
	5. $\sqrt{1}6\pm \sqrt{2}$
	6. -17 and 5
	7. $4+\sqrt{2}$ and $4−\sqrt{2}$
	8. 8 and 12
	9. 3 and 5
	10. $4+\sqrt{1}0$ and $4−\sqrt{1}0$
	11. Is $\sqrt{4}$ a positive or negative number? Explain your reasoning.
	12. Is $\sqrt{5}$ a positive or negative number? Explain your reasoning.
	13. Explain the difference between $\sqrt{9}$ and the solutions to $x^{2}=9$.
3. *Technology required.*For each equation, find the exact solutions by completing the square and the approximate solutions by graphing. Then, verify that the solutions found using the two methods are close.
* $x^{2}+10x+8=0$
* $x^{2}−4x−11=0$
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1. Jada is working on solving a quadratic equation, as shown here.
* $\begin{matrix}p^{2}−5p&=0\\p\left(p−5\right)&=0\\p−5&=0\\p&=5\end{matrix}$
* She thinks that her solution is correct because substituting 5 for $p$ in the original expression $p^{2}−5p$ gives $5^{2}−5\left(5\right)$, which is $25−25$ or 0.
* Explain the mistake that Jada made and show the correct solutions.
* (From Unit 7, Lesson 9.)
1. Which expression in factored form is equivalent to $30x^{2}+31x+5$?
	1. $\left(6x+5\right)\left(5x+1\right)$
	2. $\left(5x+5\right)\left(6x+1\right)$
	3. $\left(10x+5\right)\left(3x+1\right)$
	4. $\left(30x+5\right)\left(x+1\right)$
* (From Unit 7, Lesson 10.)
1. Two rocks are launched straight up in the air. The height of Rock A is given by the function $f$, where $f\left(t\right)=4+30t−16t^{2}$. The height of Rock B is given by $g$, where $g\left(t\right)=5+20t−16t^{2}$. In both functions, $t$ is time measured in seconds after the rocks are launched and height is measured in feet above the ground.
	1. Which rock is launched from a higher point?
	2. Which rock is launched with a greater velocity?
* (From Unit 6, Lesson 6.)
	1. Describe how the graph of $f\left(x\right)=\left|x\right|$ has to be shifted to match the given graph.
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	1. Find an equation for the function represented by the graph.
* (From Unit 4, Lesson 14.)



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