### Lesson 6 Practice Problems

1. Find two numbers that satisfy the requirements. If you get stuck, try listing all the factors of the first number.
	1. Find two numbers that multiply to 17 and add to 18.
	2. Find two numbers that multiply to 20 and add to 9.
	3. Find two numbers that multiply to 11 and add to -12.
	4. Find two numbers that multiply to 36 and add to -20.
2. Use the diagram to show that:
* $\left(x+4\right)\left(x+2\right)$ is equivalent to $x^{2}+6x+8. $

| *
 | * $x$
 | * $2$
 |
| --- | --- | --- |
| * $x$
 | *
 | *
 |
| * $4$
 | *
 | *
 |

* ​$\left(x−10\right)\left(x−3\right)$ is equivalent to $x^{2}−13x+30$.

| *
 | * $x$
 | * $-10$
 |
| --- | --- | --- |
| * $x$
 | *
 | *
 |
| * $-3$
 | *
 | *
 |

1. Select **all** expressions that are equivalent to $x−5$.
	1. $x+\left(-5\right)$
	2. $x−\left(-5\right)$
	3. $-5+x$
	4. $-5−x$
	5. $5−x$
	6. $-5−\left(-x\right)$
	7. $5+x$
2. Here are pairs of equivalent expressions—one in standard form and the other in factored form. Find the missing numbers.
	1. $x^{2}+x+$ and $\left(x−9\right)\left(x−3\right)$
	2. $x^{2}+12x+32$ and $\left(x+4\right)\left(x+\right)$
	3. $x^{2}−12x+35$ and $\left(x−5\right)\left(x+\right)$
	4. $x^{2}−9x+20$ and $\left(x−4\right)\left(x+\right)$
3. Find all the values for the variable that make each equation true.
	1. $b\left(b−4.5\right)=0$
	2. $\left(7x+14\right)\left(7x+14\right)=0$
	3. $\left(2x+4\right)\left(x−4\right)=0$
	4. $\left(-2+u\right)\left(3−u\right)=0$
* (From Unit 7, Lesson 4.)
1. Lin charges $5.50 per hour to babysit. The amount of money earned, in dollars, is a function of the number of hours that she babysits.
* Which of the following inputs is impossible for this function?
	1. -1
	2. 2
	3. 5
	4. 8
1. Consider the function $p\left(x\right)=\frac{x−3}{2x−6}$.
	1. Evaluate $p\left(1\right)$, writing out every step.
	2. Evaluate $p\left(3\right)$, writing out every step. You will run into some trouble. Describe it.
	3. What is a possible domain for $p$?
* (From Unit 4, Lesson 10.)
1. *Technology required.*When solving the equation $\left(2−x\right)\left(x+1\right)=11$, Priya graphs $y=\left(2−x\right)\left(x+1\right)−11$ and then looks to find where the graph crosses the $x$-axis.
* Tyler looks at her work and says that graphing is unnecessary and Priya can set up the equations $2−x=11$ and $x+1=11$, so the solutions are $x=-9$ or $x=10$.
	1. Do you agree with Tyler? If not, where is the mistake in his reasoning?
	2. How many solutions does the equation have? Find out by graphing Priya’s equation.
* (From Unit 7, Lesson 5.)



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