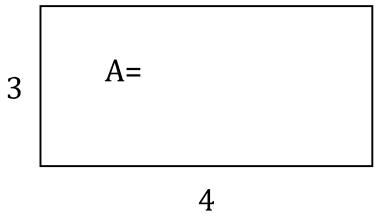
Work with a partner to complete the first part of this lesson.

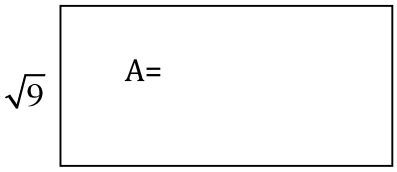
Find the area of the rectangle below.



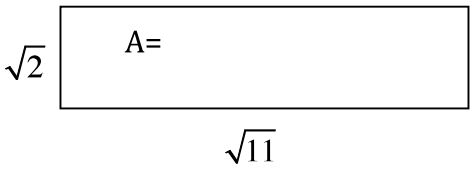
You probably got 12. ☺

Let's make it tougher. Write 3, 4 and 12 as radicals. Hint: 3 is $\sqrt{9}$.

Redo the questions using radicals. Label the missing length and solve for the area. What do you notice?



Try this one. Come up with an area as a radical, rather than a big long messy decimal.

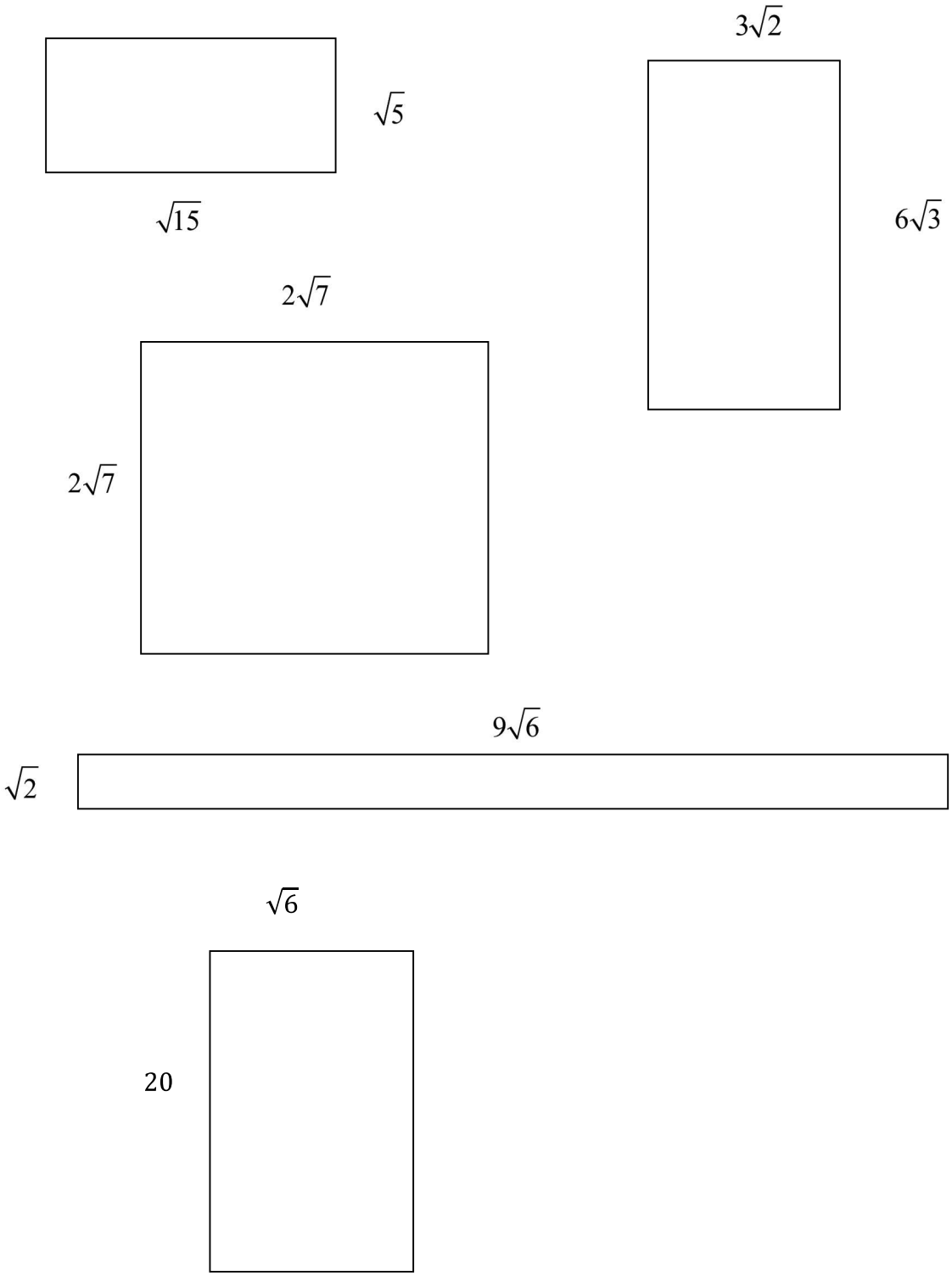


Check your answer to $\sqrt{2} \times \sqrt{11}$ using your calculator.

Have you seen enough to make a rule? What is $\sqrt{a} \times \sqrt{b}$?

Will this rule still apply if the value of a and/or b is negative?

Work with a partner to find the area of each of the following rectangles. Please express your answer as a radical (exact value – no decimals). You are going to have to figure out what to do with the coefficients **.**



Let's make it tougher. Using what you learned on the previous page, try to answer the following. You can (and should) use your calculator to check your answers, but your answers should not have any decimals in them. They should all still have radicals.

Question	**Exact Value Answer (radicals)**	**Calculator Check**
$2\sqrt{3}\times 4\sqrt{5}$		
$3\sqrt{2}\left(4\sqrt{3}-2\sqrt{5}\right)$		
$\left(2\sqrt{7}-3\sqrt{3}\right)\left(4\sqrt{2}-5\sqrt{5}\right)$		

Multiplying Radicals

$\sqrt{a}\times\sqrt{b}=$ Rule in your own words: Numerical Example:	$a\sqrt{b}\times c\sqrt{d}=$ Rule in your own words: Numerical Example:
$a\sqrt{b}\left(c\sqrt{d}+e\sqrt{f}\right)=$ Rule in your own words: Numerical Example:	$\left(a\sqrt{b}+c\sqrt{d}\right)\left(e\sqrt{f}+g\sqrt{h}\right)=$ Rule in your own words: Numerical Example: