Learning Targets:

• To make decisions about the results of adding and multiplying combinations of rational and irrational numbers.

6. e

Part I: Identify each number as rational or irrational.

$1.3^{1/2}$	5. π
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2. $16^{2/4}$

 $3. -8^{1/3}$

4.10

8.0.45

7. $(-2)^{8/2}$

Part II: Evaluate the given expression. Then, identify the final answer as *rational (R)* or *irrational (I)*.

Ex.
$$1 + 2 = 3$$

 $R + R = R$

9.
$$10 + 16^{2/4} =$$
_____ 13. $e * 10 =$ ____
___+ ___ = ____ * ___ = ____

$$10. -8^{1/3} * 0.\overline{45} = ___ \\ * ___ = ___ \\ 14. 0.\overline{45} * 10 = ___ \\ * __ = ___ \\ * _ = __ \\ * _ = ___ \\ * _ = ___ \\ * _ = ___ \\ * _ = ___ \\ * _ = ___ \\$$

11.
$$16^{2/4} + e =$$
_____ 15. $(-2)^{8/2} + 3^{1/2} =$ _____
____ + ____ = ____

	*	=			4	F	_ =		
12.10	* 16 ^{2/} 4	=		16.	$-8^{1/3}$	+	π =	=	

Part III: Draw a conclusion about each operation and explain your reasoning, if (*R*) stands for rational number and (*I*) stands for irrational number.

17. R + R =_____

Explain:

18. *R* * *R* = _____

Explain:

19. *R* + *I* = _____

Explain:

20. *R* * *I* = _____

Explain:

Part III: Use the conclusions you have drawn above to answer the following questions.

21. If 5x = y and y is *irrational*, what values of x would make the equation true?

22. If $\pi x = y$ and y is *irrational*, what values of x would make this equation true?

23. Can you make any generalization(s) about either I + I or *I? Provide specific examples to explain.