

# Operations With Radicals

In these questions, the symbol  $\sqrt{\quad}$  means the positive square root. So  $\sqrt{9} = +3$ .

For each of the following statements, indicate whether it is true for all values of  $x$ , true for some values of  $x$  or there are no values of  $x$  for which it is true. Circle the correct answer.

If you choose 'sometimes true', state all values of  $x$  that make it true.

1.  $\sqrt{\frac{x}{7}} = \frac{\sqrt{x}}{\sqrt{7}}$                       Always True                      Sometimes True                      Never True

It is true for .....

Show your reasoning: .....

.....  
 .....

2.  $\sqrt{x^2 + 3^2} = x + 3$                       Always True                      Sometimes True                      Never True

It is true for .....

Show your reasoning: .....

.....  
 .....

If you change 3 to another number, is your answer still correct? Explain.

.....  
 .....

3.  $(1 - \sqrt{2x})(1 + \sqrt{2x}) = -5$                       Always True                      Sometimes True                      Never True

It is true for .....

Show your reasoning: .....

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 .....

## Cards: Always, Sometimes, or Never True?

A.

$$\sqrt{x+2} = \sqrt{x} + \sqrt{2}$$

B.

$$\sqrt{3x} = \sqrt{3} \cdot \sqrt{x}$$

C.

$$\sqrt{2-x} = \sqrt{2} - \sqrt{x}$$

D.

$$\sqrt{x^2 - 2^2} = x - 2$$

E.

$$\sqrt{x^2} \cdot \sqrt{3^2} = 3x$$

F.

$$\frac{\sqrt{x^2}}{\sqrt{3^2}} = \frac{x}{3}$$

G.

$$(3 + \sqrt{x})(3 - \sqrt{x}) = 10$$

H.

$$\sqrt{x+1} + \sqrt{x-1} = \sqrt{2x}$$

# Operations With Radicals (revisited)

In these questions, the symbol  $\sqrt{\quad}$  means the positive square root. So  $\sqrt{9} = +3$ .

For each of the following statements, indicate whether it is true for all values of  $x$ , true for some values of  $x$  or there are no values of  $x$  for which it is true. Circle the correct answer.

If you choose 'sometimes true', state all values of  $x$  that make it true.

1.  $\sqrt{x} \times \sqrt{x} = 2\sqrt{x}$                       Always True                      Sometimes True                      Never True

It is true for .....

Show your reasoning: .....

.....  
 If you replace 2 by  $y$ , is your answer still correct? Explain.

.....

2.  $\sqrt{\frac{x}{y}} = \frac{\sqrt{x}}{\sqrt{y}}$                       Always True                      Sometimes True                      Never True

It is true for .....

Show your reasoning: .....

.....

3.  $\sqrt{3+x} + \sqrt{3-x} = 2\sqrt{3}$                       Always True                      Sometimes True                      Never True

It is true for .....

Show your reasoning: .....

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