## READY

## Topic: Solving Systems of Equations.

For each of the systems below, determine whether the ordered par (3,3) ss solution.

1. $y=\sqrt{x+6}$ and $y=-2 x+9$

2. 


2. $y=\frac{6}{x}+1$ and $y=\frac{2}{3} x+1$
$\begin{array}{ll}3=\frac{6}{3}+1 & 3=\frac{2}{8}(3)+1 \\ 3=2+1 v & 3=2+15\end{array}$
$(3,3)$ is
$3=2+1 V$
$3=2+1-1$
4.

5.


| $\mathbf{x}$ | $\mathbf{f ( x )}$ |
| :---: | :---: |
| 0 | 0 |
| 1 | 3 |
| 4 | 6 |
| 9 | 9 |


| $\mathbf{x}$ | $\mathbf{g}(\mathbf{x})$ |
| :---: | :---: |
| -4 | -8 |
| -3 | -6 |
| -2 | -4 |
| -1 | -2 |
| 1 | 0 |
| 2 | 2 |
| 3 | 4 |



$$
f(x)=x
$$

Developed by CHCCS and WCPSS
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SET
Topic: Solve systems of equations involving square root and inverse variation relationships.
Write a system of equations or inequalities to solve each problem.
7. You have 36 yards of fencing to build the enclosure pictured to the right. Some of this fencing is to be used to build an internal divider. If you'd like to enclose 54 square yards, what are the dimensions of the enclosure?

$$
\begin{aligned}
& \text { 8. } \begin{cases}y=\sqrt{2 x} & (x-4)^{2}=(\sqrt{2 x})^{2} \\
x-y=4 & x^{2}-8 x+16=2 x \\
x-4=y & x^{2}-10 x+16=0 \\
8-4=4 & (x-8)(x-2)=0 \\
(8,4) & \begin{array}{l}
(x=8) \times 2 \\
2-4=-2
\end{array} \\
\begin{array}{l}
\text { extraneous } \\
2-4=\sqrt{2(2)} \\
-2=2
\end{array}\end{cases}
\end{aligned}
$$

9. The sum of two numbers is 10 and their product is 24 . Find the numbers.


6 and 4
10.

$$
\begin{array}{lr}
\begin{array}{l}
y=\sqrt{3 x-2} \\
y=\sqrt{3(x)-2}=2 \\
y=\sqrt{x+2}
\end{array} & (\sqrt{3 x-2})^{2}=(\sqrt{x+2})^{2} \\
y=\sqrt{2+2} & 3 x-2=x+2 \\
y=\sqrt{4} & 3 x-x=2+2 \\
y=2 & 2 x=4 \\
& x=4 \\
& x=2
\end{array}
$$



$$
y=6
$$

Areal

$$
x y=54
$$

$$
x\left(-\frac{2}{3} x+12\right)=54
$$

$$
\frac{3 y}{3}=-\frac{2 x}{3}+\frac{36}{3}
$$

$$
\begin{aligned}
&-\frac{2}{3} x^{2}+12 x=54 \\
& \frac{3}{3} 0\left.=\frac{3}{2} x^{2}-12 x+54\right) \\
& 0=x^{2}-18 x+81 \\
& 0=(x-9)(x-9) \\
& x-9=9 \\
& x=9
\end{aligned}
$$

$$
\text { (y) }-\frac{2^{3}}{3} x+12^{3}
$$

## GO!

Topic: Solve quadratic equations.
11. $x^{2}-5 x+10=0$


$$
\begin{aligned}
& \left(x^{2}-5 x+\frac{25}{4}\right)=-10+\frac{25}{4} \\
& \left(x-\frac{5}{2}\right)^{2}=\frac{-40}{4}+\frac{25}{4} \\
& \sqrt{\left(x-\frac{5}{2}\right)^{2}=\sqrt{-\frac{15}{4}}} \begin{array}{l}
x-\frac{5}{2}= \pm \frac{i \sqrt{15}}{2}
\end{array}, x=\frac{5 \pm i \sqrt{15}}{2}
\end{aligned}
$$

13. $x^{2}+4 x+2=0$

$$
\begin{aligned}
& x^{2}+4 x+4=-2+4 \\
& \sqrt{(x+2)^{2}}=\sqrt{2} \\
& x+2= \pm \sqrt{2} \\
& x=-2 \pm \sqrt{2}
\end{aligned}
$$

15. $3 x-2=5 x^{2}$

$$
\begin{aligned}
& 0=5 x^{2}-3 x+2 \\
& x=\frac{3 \pm \sqrt{9-4(5)(2)}}{10} \\
& x=\frac{3 \pm \sqrt{9-40}}{10} \\
& x=\frac{3 \pm \sqrt{-31}}{10} \\
& x=\frac{3 \pm i \sqrt{31}}{10}
\end{aligned}
$$

12. $-2 x^{2}+4 x+6=15$

$$
\begin{aligned}
& 0=2 x^{2}-4 x+9 \\
& x=\frac{4 \pm \sqrt{16-4(2)(9)}}{4}
\end{aligned}
$$

$$
x=\frac{4 \pm \sqrt{16-72}}{4}=\frac{4 \pm \sqrt{-56}}{4}=\text { (7) (2) }
$$

$$
=\frac{4 \pm 2 i \sqrt{14}}{4}
$$

14. $5 x^{2}-5 x+2=3 x^{2}-3 x$
$=\frac{4}{\frac{2 \pm i \sqrt{14}}{2}}$ $2 x^{2}-2 x+2=0$
$x^{2}-x+1=0$

$$
x=\frac{1 \pm \sqrt{1-4(1)(1)}}{2}
$$

$$
x=\frac{1 \pm \sqrt{-3}}{2}
$$

$$
x=\frac{1 \pm i \sqrt{3}}{2}
$$

16. $7-8 x^{2}=6 x+16$

$$
0=8 x^{2}+6 x+9
$$



