

1. Put  $y = x^2 - 6x + 10$  in vertex form
2. Put  $2x^2 + 4x - 5 = y$  in vertex form
3. Put  $3(x - 2)^2 + 4 = y$  in standard form

Hint: Use  $h = \frac{-b}{2a}$  or your calculator

Page 7 in your study guide

**Objectives**

**Solve equations containing radical expressions**

**Recognize when extraneous solutions may arise when solving radical equations and check solutions to determine which solutions may be extraneous.**

**Homework**

**Packet Page 15: 2, 3, 6, 8 and 9**

**Packet Page 16: 11-21 odd**

# Schedule today...

1st block  
2nd block

9:15 – 10:17  
10:23 – 11:25

## No Enrichment

'A' lunch 3<sup>rd</sup> block class  
'A' lunch

11:56 -1:00  
11:25 – 11:50

'B' lunch 3<sup>rd</sup> block class  
'B' lunch

11:31 – 12:00; 12:31 – 1:00  
12:00 – 12:25

'C' lunch 3<sup>rd</sup> block class  
'C' lunch

11:31 – 12:35  
12:35 – 1:00

4th block

1:06 – 2:15

The progress report you have is for your eyes only. You will receive a new report next week that will need to be signed.

Look at what assignments are missing. You can still turn things in. Any grade is better than a ZERO.

# CASTLE LEARNING ASSIGNMENTS

**GET OUT  
YOUR  
PHONES!**

go to [www.castlelearning.com](http://www.castlelearning.com)

Logon ID is **cms-student id**

For example if your user id is 48309203 your  
user id is **cms-48309203**.

You don't need a password the first time you log in. You'll be prompted to create one.

# Homework Review

## What is a Radical Equation?

An equation that has a variable in a radicand or a variable with a rational exponent.

$$3 + \sqrt{2x - 3} = 8$$

## Three basic step...

$$\begin{array}{r} 3 + \sqrt{2x - 3} = 8 \\ -3 \qquad \qquad -3 \end{array}$$

---

$$\sqrt{2x - 3} = 5$$

$$(\sqrt{2x - 3})^2 = 5^2$$

$$\begin{array}{r} 2x - 3 = 25 \\ +3 \quad +3 \end{array}$$

---

$$2x = 28$$

$$\frac{2x}{2} = \frac{28}{2}$$

$$x = 14$$

1. Isolate the radical expression

2. Square both sides

3. Solve for x



**Do problems 3, and 9 on Packet Page 15**

**3.)**

**9.)**



It can get a little complicated.  
Sometimes we cause **extraneous**  
solutions to appear when we solve  
radical equations.

## So what do we mean by extraneous solutions...

**ex·tra·ne·ous**  [ik-strey-nee-uhs]  [Show IPA](#)

*adjective*

1. introduced or coming from without; not belonging or proper to a thing; external; foreign: *extraneous substances in our water.*
2. not pertinent; irrelevant: *an extraneous remark; extraneous decoration.*

**Origin:**

1630-40; < Latin *extrāneus* external, foreign, equivalent to *extr(a)-* extra- + *-ān(us)* -an + *-eus* -eous

What is the solution of  $\sqrt{x + 7} - 5 = x$ ? Check your results.

$$\sqrt{x + 7} - 5 = x$$

Isolate the radical.

Square each side.

Simplify.

Combine like terms.

Factor.

Zero-Product Property

To check our answers we substitute them back into the original equation and see if they produce a true statement.

**Check**

$$\begin{aligned}\sqrt{x+7}-5 &= x \\ \sqrt{-3+7}-5 &\stackrel{?}{=} -3\end{aligned}$$

$$\begin{aligned}\sqrt{x+7}-5 &= x \\ \sqrt{-6+7}-5 &\stackrel{?}{=} -6\end{aligned}$$

?

**Do problems 11, and 15 on Packet Page 16**

**11.)**

**15.)**

# Remember !!

Whenever we square both sides of an equation to solve, we may be introducing **extraneous** solutions into the equation.

When checking your solutions, use the **original** when substituting values.

**What if  
you have  
more than  
one  
radical in  
the  
equation?**

What is the solution of  $\sqrt{2x + 1} - \sqrt{x} = 1$ ?

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

Isolate the more complicated radical.

Square each side.

Isolate  $2\sqrt{x}$ .

Square each side.

Subtract  $4x$  from each side.

Factor.

Zero-Product Property



**Check your  
answers...**

**Check**

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

$$\sqrt{2(0) + 1} - \sqrt{0} \stackrel{?}{=} 1$$

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

$$\sqrt{2(4) + 1} - \sqrt{4} \stackrel{?}{=} 1$$

**?**

What if you have to solve an equation like the following?

$$(x + 6i)(2 + i) = 14 + 22i$$



Expand the left side. (FOIL)

Simplify (use  $i^2 = -1$ )

Group real and imaginary terms

Set Corresponding Parts Equal

Solve each part for x

Now you try. Solve for x

$$(3 + 2i)(1 - xi) = 9 - 7i$$



Expand the left side. (FOIL)

Simplify (use  $i^2 = -1$ )

Group real and imaginary terms

Set Corresponding Parts Equal

Solve each part for x

**Work on your homework.**

