welcome - Please take the warm up on the front corner table

take out your homework for me to see!

If you have your contract take it out!
you are quiet!
Good morning - Hope you had a wonderful weekend! The REDSKINS WON!!! GO SKINS

- Your warmup - I will put it up on the board in a moment.... hold tight.

- take out your homework

-I will be passing back tests.....
Notes - Exponents, Perfect Squares, and Square Roots

- The exponent tells us how many times the base is used as a factor.
- The large number is called a **base**.
- The small number is called an **exponent**.

5 \(^2\) is read as “five squared”. It tells you to multiply 5 by itself two times. 
5 \* 5 = 25

4 \(^3\) is read “four cubed”. It tells you to multiply 4 by itself three times. 
4 \* 4 \* 4 = 64
2^5 is read as “two to the fifth power”. It tells you to multiply 2 by itself five times.
2 \times 2 \times 2 \times 2 \times 2 = 32

You Try!

4^2 = \underline{______} \quad 2^3 = \underline{______} \quad 8^2 = \underline{______} \quad 5^3 = \underline{______}
Perfect Square - a perfect square is the square of a whole number.

- We say that any number raised to the power of 2 is “squared”, and will form a perfect “square” when building the shape.

Here are the first three perfect squares:

\[1^2 = 1 \times 1 = 1\]
\[2^2 = 2 \times 2 = 4\]
\[3^2 = 3 \times 3 = 9\]
\[\sqrt{4} = 2\]
You Try!

$9^2 = \underline{81}$  $4^2 = \underline{16}$  $5^2 = \underline{25}$

$9 \times 9$  $4 \times 4$  $5 \times 5$

$7^2 = \underline{49}$  $6^2 = \underline{36}$  $10^2 = \underline{100}$

$7 \times 7$  $6 \times 6$  $10 \times 10$
Square Root - the square root of a number, \( n \), is a number that when multiplied by itself, equals \( n \).

Here are square roots of the perfect squares above.

\[
\begin{align*}
1^2 &= 1 & \sqrt{1} &= 1 \\
2^2 &= 4 & \sqrt{4} &= 2 \\
3^2 &= 9 & \sqrt{9} &= 3 \\
16 &= 16 \\
4x4 &= 16 \\
\end{align*}
\]

is called a radical sign.
You Try!

$\sqrt{25} = 5$  $\sqrt{100} = 10$

$\sqrt{36} = 6$  $\sqrt{49} = 7$

$\sqrt{64} = 8$  $\sqrt{16} = 4$
Exponent Notes Cont.

* Exponents are used as a shortcut for repeated multiplication.
* The exponent shows how many times to multiply the number by the base.
* An exponent does not have to be smaller than its base ($5^6$) because the exponent tells us how many times to multiply the base by itself.
How to Calculate Exponents with a calculator

1. Type the base number.
2. Push the $y^x$ button (below CE/C).
3. Type in exponent.
4. Hit the = sign.
Square Roots and Perfect Squares Notes

Learning Target:
SOL 6.5: The student investigate and describe concepts of perfect squares

Perfect Squares:

Square root:

Radical sign:

To square a number means to multiply that number by itself.

These are some examples of perfect squares

\[ 1^2 = 1 \times 1 = \]
\[ 2^2 = 2 \times 2 = \]
\[ 3^2 = 3 \times 3 = \]
\[ 4^2 = 4 \times 4 = \]
\[ 5^2 = 5 \times 5 = \]
\[ 6^2 = 6 \times 6 = \]
\[ 7^2 = 7 \times 7 = \]
\[ 8^2 = 8 \times 8 = \]
\[ 9^2 = 9 \times 9 = \]
\[ 10^2 = 10 \times 10 = \]
\[ 11^2 = 11 \times 11 = \]
\[ 12^2 = 12 \times 12 = \]
\[ 13^2 = \]
\[ 14^2 = \]
\[ 15^2 = \]
\[ 16^2 = \]
\[ 17^2 = \]
\[ 18^2 = \]

\[ 19^2 = \]
\[ 20^2 = \]

A square root of a number is one of two equal factors.

What is the \( \sqrt{16} \)? \( 4 \times 4 = 16 \), so 4 is the square root of 16.

Try these:

1. \( \sqrt{81} \)
2. \( \sqrt{64} \)
3. \( \sqrt{169} \)
4. \( \sqrt{100} \)

Wools, 2015-2016
Find the square of each number.

5. $6^2 = 36$
6. $17^2 = 289$
7. $30^2$
8. $18^2$
9. $20^2$

Find each square root.

10. $\sqrt{4} = 2$
11. $\sqrt{49} = 7$
12. $\sqrt{225}$
13. $\sqrt{1600}$

$9 = 81$, $5 = 15$
(U Try)

1. $65 = 1776$
   \[6 \times 6 \times 6 \times 6 \times 4\]

2. $94 = 6561$
   \[9 \times 9 \times 9 \times 9\]

3. $12 = 1728$
   \[12 \times 12 \times 12\]

4. $3^7 = 2187$
   \[3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3\]

5. $2^8 = 256$
   \[2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2\]

6. $15^2 = 225$
   \[15 \times 15\]
$3^1 = 3$

$\frac{3}{3} = 1$

*Any base that has an exponent of 0 will always have an answer of 1.*

*Any base that has an exponent of "0" will always have the answer of 1.*
$1^2 = 1$
$2^2 = 4$
$3^2 = 9$
$4^2 = 16$

$\sqrt{1} = 1$
$\sqrt{4} = 2$
$\sqrt{9} = 3$
$3^1 = 3$
$3^0 = 1$

* Any base that has an exponent of 1 will always have itself as the answer.

* Any base that has an exponent of 0 will always have an answer of 1.
* Exponents are used as a short cut for repeated multiplication. $4 \times 4 \times 4 = 4^3$

* The exponent shows how many times to multiply the number by the base.

* An exponent does not have to be smaller than its base ($5^6$) because it tells you how many times to multiply the base.
How to Calculate Exponents Using a Calculator

1. Type the base number
2. Push the $y^x$ button (under the CE/c)
3. Type in your exponent.
4. Hit the $=$ button.
Try Calculator practice

1. $6^4 = 1296$
   $6 \times 6 \times 6 \times 6$

2. $3^3 = 81$
   $3 \times 3 \times 3$

3. $5^3 = 125$
   $5 \times 5 \times 5$

4. $9^2 = 81$
   $9 \times 9$

5. $2^7 = 128$
   $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

6. $3^2 = 1728$
   $3 \times 3$
Exponent Notes Cont.

$3^1 = 3$  # Any base that has an exponent of 1 will always have answer of itself

$3^0 = 1$  # Any base that has an exponent of "0" will always have the answer of 1
- Exponents are used as a shortcut for repeated multiplication. $5^3 = 5 \times 5 \times 5$

- The exponent shows how many times to multiply the base number.

- An exponent does not need to be smaller than the base number.
How do you use a Calculator to Calculate exponents

1. Type in base number
2. Push $y^x$ button (It is below $\text{CE/C}$)
3. Type in the exponent
4. Hit the = button.
Cal. Practice

1. 12³  \[2 \times 12 \times 12 = 1728\]

2. 3⁷  \[3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 = 2187\]

3. 6⁶  \[6 \times 6 \times 6 \times 6 \times 6 \times 6 = 46,656\]

4. 4⁶  \[4 \times 4 \times 4 \times 4 \times 4 \times 4 = 4096\]
Rise and shine!!! Take out your mountain math and if you have not completed 14-24 please work on it....

we will be going over these today..

we will be switching .....
\[ \frac{100}{100} \times \frac{125}{100} = \frac{125}{100} \times 0.10 \times 0.75 \times 0.5 \times \frac{100}{100} = 0.1 \]
\[
\frac{25}{100} = \frac{1}{4}
\]
$\frac{54}{7 \times 2^3}$

$7 \times 2^3$
\[
\begin{align*}
7.81 & \quad 0.109 & \quad 3 \\
\times 0.109 & \quad \times 7.81 & \quad \frac{2}{5} \\
0.85129 & \quad 10109 & \quad 2 \\
0872 & \quad 0763 & \quad 085029
\end{align*}
\]
\[
\begin{align*}
116 & \div 13 \\
118 & \div 3.14 \\
120 & \div 314 \\
25 & \div 12 \\
25 & \div 434 \\
25 & \div 600
\end{align*}
\]
Hi - take out your homework for me to see.

Warm up:
Below is message that my son sent to his friend last night. I told him that it was too long to send as a text. Rewrite the message in a shortened form.

Hi Grant,
Today, while walking home from school, I got drenched in the rain. I can't believe it! My book bag wasn't zipped all the way, and my papers got soaked. I can't read our homework assignment. Can you send it to me?

Thank you so much!
Bradley
1.352
1.252 \times 10^3
0.00038
3.8 \times 10^{-4}