9/12 Algebra 1 - Downing

Bellwork

1) $3x(-2)(x-4) = 4x-10$

$3x - 2x + 8 = 4x - 10$

$1x + 8 = 4x - 10$

$-4x \quad -4x$

$-3x + 8 = -10$

$-8 \quad -8$

$\frac{-3x}{-3} = \frac{-18}{-3}$ $\boxed{x = 6}$

2) What does your 5th test need to be at least 90% in the class if your first 4 tests were: 89, 95, 75, 83

$\frac{89+95+75+83+x}{5} \geq 90$

$(5)\frac{342+x}{5} \geq 90(5)$

$342 + x \geq 450$

$-342 \quad -342$

$x \geq 108\%$

2.5 C - Simplifying Radicals

A number that is multiplied by itself to form a product is called a square root of that product. The operations of squaring and finding a square root are inverse operations, (opposite)

$1 \cdot 1 = 1^2 = 1$ ← Perfect Squares	$\sqrt{1} = 1$
$2 \cdot 2 = 2^2 = 4$	$\sqrt{4} = 2$
$3 \cdot 3 = 3^2 = 9$	$\sqrt{9} = 3$
$4 \cdot 4 = 4^2 = 16$	$\sqrt{16} = 4$
$5 \cdot 5 = 5^2 = 25$	$\sqrt{25} = 5$
$6 \cdot 6 = 6^2 = 36$	$\sqrt{36} = 6$
$7 \cdot 7 = 7^2 = 49$	$\sqrt{49} = 7$
$8 \cdot 8 = 8^2 = 64$	$\sqrt{64} = 8$
$9 \cdot 9 = 9^2 = 81$	$\sqrt{81} = 9$
$10 \cdot 10 = 10^2 = 100$	$\sqrt{100} = 10$

The radical symbol $\sqrt{\ }$, is used to represent square roots. Positive real numbers have two square roots.

Ex) $(-1)(-1) = 1$

$\sqrt{1} = \pm 1$

* Regular numbers multiply and divide well with regular numbers. Square roots multiply and divide well with square roots. They DON'T multiply + divide with each other.

Ex) $\frac{4}{2} = 2$ $\quad 3 \cdot 5 = 15$ $\quad 5 \cdot \sqrt{7} = 5\sqrt{7}$

$\frac{\sqrt{12}}{\sqrt{2}} = \sqrt{6}$ $\quad \sqrt{3} \cdot \sqrt{7} = \sqrt{21}$ $\quad \frac{2\sqrt{10}\sqrt{30}}{5} = 2\sqrt{30}$

* Simplified radical form is when:

→ there are no perfect square factors under the radical.

→ No radicals are in the denominator

$\sqrt{3} \cdot \sqrt{3} = \sqrt{9} = 3 \longrightarrow (\sqrt{3})^2 = 3$

$\sqrt{5} \cdot \sqrt{5} = \sqrt{25} = 5$

$\sqrt{8} \cdot \sqrt{8} = \sqrt{64} = 8$

$\sqrt{396} \cdot \sqrt{396} = 396$

Simplify

$\sqrt{32} \to \sqrt{4}\sqrt{8} \to \sqrt{2}\sqrt{2}\sqrt{4}\sqrt{2} \to \sqrt{2}\sqrt{2}$

$\sqrt{2}\cdot\sqrt{2}\cdot\sqrt{2}\cdot\sqrt{2}\cdot\sqrt{2} \to 2 \cdot 2 \cdot \sqrt{2}$

$\boxed{4\sqrt{2}}$

$\sqrt{24} \to \sqrt{3}\sqrt{8} \to \sqrt{2}\sqrt{4} \to \sqrt{2}\sqrt{2}$

$\sqrt{3}\cdot\sqrt{2}\ \sqrt{2}\cdot\sqrt{2} \to \sqrt{3}\cdot\sqrt{2}\cdot 2$

$\boxed{2\sqrt{6}}$

$\sqrt{24} \to \sqrt{2}\sqrt{12} \to \sqrt{2}\sqrt{6} \to \sqrt{2}\sqrt{3}$

$\sqrt{2}\cdot\sqrt{2}\cdot\sqrt{2}\cdot\sqrt{3} \to \boxed{2\sqrt{6}}$

$\sqrt{72} \to \sqrt{8}\sqrt{9} \to \sqrt{4}\sqrt{2}\ \sqrt{3}\sqrt{3} \to \sqrt{2}\sqrt{2}$

$\sqrt{2}\cdot\sqrt{2}\cdot\sqrt{2}\cdot\sqrt{3}\cdot\sqrt{3} \to 2 \cdot 3$

$\boxed{6\sqrt{2}}$

$\sqrt{32} \to \sqrt{2}\sqrt{16} \to \sqrt{4}\sqrt{4}$

$\boxed{4\sqrt{2}}$

$\sqrt{225} \to \sqrt{15}\sqrt{15}$

$\boxed{15}$

$\sqrt{128} \to \sqrt{2}\cdot\sqrt{64} \to \sqrt{8}\sqrt{8}$

$\boxed{8\sqrt{2}}$

$-2\sqrt{108} \to -2\sqrt{2}\sqrt{54} \to -2\sqrt{2}\sqrt{2}\sqrt{27} \to -2\sqrt{2}\sqrt{3}\sqrt{9} \to -2\sqrt{2}\sqrt{3}\sqrt{3}$

$-2 \cdot 2 \cdot 3\sqrt{3}$

$\boxed{-12\sqrt{3}}$

HW - WS 2.5 C
#1-6 only