

$$\begin{array}{r}
 2 \overline{) 37800} \\
 \underline{2} \phantom{00} \\
 2 \overline{) 18900} \\
 \underline{2} \phantom{00} \\
 2 \overline{) 9450} \\
 \underline{3} \phantom{00} \\
 3 \overline{) 4725} \\
 \underline{3} \phantom{00} \\
 3 \overline{) 1575} \\
 \underline{3} \phantom{00} \\
 3 \overline{) 525} \\
 \underline{5} \phantom{00} \\
 5 \overline{) 175} \\
 \underline{5} \phantom{00} \\
 5 \overline{) 35} \\
 \underline{7} \phantom{00} \\
 7
 \end{array}$$

$$\begin{aligned}
 \sqrt{37800} &= \sqrt{2^3 \cdot 3^3 \cdot 5^2 \cdot 7} \\
 &= 2 \cdot 3 \cdot 5 \sqrt{2 \cdot 3 \cdot 7} \\
 &= 150 \sqrt{42}
 \end{aligned}$$

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

$$\begin{aligned}
 &\sqrt{2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 5 \cdot 5 \cdot 7} \\
 &= 2 \cdot 3 \cdot 5 \sqrt{2 \cdot 3 \cdot 7} \\
 &= 30 \sqrt{42}
 \end{aligned}$$



Force Factor  
Cheat  
FORD HAMMER

$$\begin{aligned}
 x^2 - 4x + 1 &= 0 \Rightarrow \\
 a=1, b=-4, c=1 &\Rightarrow \\
 b^2 - 4ac &= (-4)^2 - 4(1)(1) \quad * \\
 &= 16 - 4 \\
 &= 12 \Rightarrow * \\
 \sqrt{b^2 - 4ac} &= \sqrt{12} = \sqrt{2 \cdot 2 \cdot 3} = 2\sqrt{3} \\
 \Rightarrow x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\
 &= \frac{-(-4) \pm 2\sqrt{3}}{2(1)} = \frac{4 \pm 2\sqrt{3}}{2} = \frac{2(2 \pm \sqrt{3})}{2} = 2 \pm \sqrt{3} \\
 \Rightarrow x^2 - 4x + 1 &= (x - (2 + \sqrt{3}))(x - (2 - \sqrt{3}))
 \end{aligned}$$

Radical  
Radical

$$\begin{aligned}
 \underline{6x + 4} &= 2(3x + 2) = 6x + 4 \\
 &= 2\left(\frac{6x}{2} + \frac{4}{2}\right) = 2(3x + 2)
 \end{aligned}$$

$\sqrt{-1}$  = the imaginary unit =  $i$

$$\sqrt{-1} = i$$

whole class ~~scribble~~

$$= \boxed{2x \left( \frac{8x^2}{2x} + \frac{14x}{2x} \right) - 3 \left( \frac{-12x}{-3} + \frac{-21}{-3} \right)}$$

$$= 2x(4x+7) - 3(4x+7)$$

$$= (4x+7)(2x-3)$$

$$\begin{array}{r} 2 \overline{) 8} \\ 2 \overline{) 4} \\ \hline 2 \end{array} \quad \begin{array}{r} 2 \overline{) 4} \\ \hline 7 \end{array}$$

$$\begin{array}{r} 2 \overline{) 12} \\ 2 \overline{) 6} \\ \hline 3 \end{array} \quad \begin{array}{r} 3 \overline{) 21} \\ \hline 7 \end{array}$$

$$(ab)^c = a^c b^c$$

$$(a^b)^c = a^{bc}$$

$$a^{-c} = \frac{1}{a^c}$$

$$\frac{1}{a^c} = a^{-c}$$

$$\frac{1}{a^{-c}} = a^c$$

$$\frac{(6x^2y^3)^{-4}}{(15x^{-2}y^{-5})^{11}} = \frac{6^{-4}(x^2)^{-4}(y^3)^{-4}}{(15^{11})(x^{-2})^{11}(y^{-5})^{11}}$$

$$= \frac{6^{-4}x^{-8}y^{-12}}{15^{11}x^{-22}y^{-55}} = \frac{6^{-4}}{15^{11}} x^{-8-(-22)} y^{-12-(-55)}$$

$$= \frac{1}{6^4 \cdot 15^{11}} x^{14} y^{43}$$

No help, here, but  
cool for

$$\frac{6^4}{15^{11}} = \frac{3 \cdot 2^4}{3^{11} \cdot 5^{11}} = \frac{2^4}{3^7 \cdot 5^{11}}$$

$$6^4 = (3 \cdot 2)^4 = 3^4 \cdot 2^4$$

$$15^{11} = (3 \cdot 5)^{11} = 3^{11} \cdot 5^{11}$$

$$6^4 \cdot 15^{11} = 3^4 \cdot 2^4 \cdot 3^{11} \cdot 5^{11} = 3^{15} \cdot 2^4 \cdot 5^{11}$$