

June 24, 2015

$$\frac{3}{5i} = \frac{3(\sqrt{15} - \sqrt{3})}{(\sqrt{15} + \sqrt{3})(\sqrt{15} - \sqrt{3})}$$

FOIL Conjugate Pairs

$$\frac{3\sqrt{15} - 3\sqrt{3}}{15 - \sqrt{15}\sqrt{3} + \sqrt{15}\sqrt{3} - 3}$$

$$\frac{3\sqrt{15} - 3\sqrt{3}}{12}$$

$$\frac{3(\sqrt{15} - \sqrt{3})}{4}$$

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Division of Complex Numbers

$$\frac{3}{5i} = \frac{3(0 - 5i)}{(0 + 5i)(0 - 5i)}$$

FOIL Conjugate Pairs

$$\frac{0 - 15i}{0 + 0 - 25i^2}$$

$$\frac{-15i}{-25i^2}$$

$$\frac{-15i}{-25(-1)} = \frac{-15i}{25}$$

$$= -\frac{3i}{5}$$

Alternate Quick Way

$$\frac{3}{5i} \cdot \frac{-5i}{-5i} = \frac{-15i}{-25i^2}$$

$$= \frac{-15i}{25}$$

$$= -\frac{3}{5}i$$

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$$\frac{7(2-i)}{(2+i)(2-i)}$$

FOIL

$$\frac{14 - 7i}{4 - i^2} = \frac{14 - 7i}{4 - (-1)}$$

(F) (L)

$$= \frac{14 - 7i}{4 + 1}$$

$$= \frac{14 - 7i}{5}$$

\* put in a+bi

$$= \frac{14}{5} - \frac{7}{5}i$$

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$$\frac{7(3-4i)}{-7i \cdot 7i}$$

$$\frac{21i - 28i^2}{-49i^2}$$

$$\frac{21i - 28(-1)}{-49(-1)}$$

$$\frac{21i + 28}{49} = \frac{7(3i+4)}{49}$$

$$= \frac{3i+4}{7}$$

$$= \frac{4}{7} + \frac{3}{7}i$$

a+bi

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$$\frac{-5 + 6i}{11 - 2i}$$

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8.7 Solving Radical Equations

$$(\sqrt{2x+3})^2 = (9)^2$$

$$2x + 3 = 81$$

$$\frac{2x}{2} = \frac{78}{2}$$

$$x = 39$$

Must Check

$$\sqrt{2(39) + 3} = 9$$

$$\sqrt{78 + 3} = 9$$

$$\sqrt{81} = 9$$

$$9 = 9$$

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$$\sqrt{-10x-1} + 3x = 0$$

① Before solving a radical equation, we must first calculate a radical

$$(\sqrt{-10x-1})^2 = (-3x)^2$$

$$-10x-1 = 9x^2$$

*\* Set whole equation equal to zero*

$$0 = 9x^2 + 10x + 1$$

$$0 = (9x+1)(x+1)$$

$9x^2 + 9x + x + 1$

①  $9x+1=0$   
 $9x = -1$   
 $x = -\frac{1}{9}$

②  $x+1=0$   
 $x = -1$

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Check

$$x = -\frac{1}{9}$$

$$\sqrt{-10(-\frac{1}{9})-1} + 3(-\frac{1}{9}) = 0$$

$$\sqrt{\frac{10}{9}-1} - \frac{3}{9} = 0$$

$$\sqrt{\frac{10-9}{9}} - \frac{1}{3} = 0$$

$$\sqrt{\frac{1}{9}} - \frac{1}{3} = 0$$

$$\frac{\sqrt{1}}{\sqrt{9}} - \frac{1}{3} = 0$$

$$\frac{1}{3} - \frac{1}{3} = 0$$

$$0 = 0 \checkmark$$

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$$x = -1$$

$$\sqrt{-10(-1)-1} + 3(-1) = 0$$

$$\sqrt{10-1} - 3 = 0$$

$$\sqrt{9} - 3 = 0$$

$$3 - 3 = 0$$

$$0 = 0$$

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Do 8.6 m3

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$$\frac{4}{\sqrt[3]{9}} \cdot \frac{\sqrt[3]{3}}{\sqrt[3]{3}} = \frac{4\sqrt[3]{3}}{\sqrt[3]{27}} = \frac{4\sqrt[3]{3}}{3}$$

$9^{1/3}$

$\frac{3}{1} \cdot \frac{9}{9}$

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