Quiz 8.1

1 (2 points) Solve the equation using the Square Root Property.

$$\left(x-\frac{2}{3}\right)^2=\frac{5}{9}$$

2. (3 points) Solve the equation by completing the square.

$$w^2-5w=14$$

3. (3 points) Solve the equation by completing the square.

$$2x^2+4x+5=0$$

Mar 25-3:46 PM

8.3 Solving Equations Quadratic in Form

Solve

$$x^4+x^2-12=0$$

$(x^2+4)(x^2-3)=0$

$x^2+4=0 \quad x^2-3=0$

$x^2=-4 \quad x^2=3$

$x=\pm 2i \quad x=\pm\sqrt{3}$

Mar 25-3:50 PM

You Try

$$x^4-13x^2+36=0$$

$(x^2-9)(x^2-4)=0$

$(x+3)(x-3)(x+2)(x-2)=0$

$x=-3,3,-2,2$

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Solve

$$(z^2-5)^2-3(z^2-5)-4=0$$

$u=z^2-5$

$u^2-3u-4=0$

$(u-4)(u+1)=0$

$u=4 \quad u=-1$

$z^2-5=4 \quad z^2-5=-1$

$z=\pm 3 \quad z=\pm 2$

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You Try

$2(2z^2-1)^2+5(2z^2-1)-3=0$

$u=2z^2-1$

$2u^2+5u-3=0$

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Solve

$3x-5\sqrt{x}-2=0$

$(x^{\frac{1}{2}})^2=x$

$3x-5(x^{\frac{1}{2}})-2=0$

$u=x^{\frac{1}{2}}$

$u^2=x$

$3u^2-5u-2=0$

$-6 \mid 1$

$3u^2-6u+u-2=0$

$3u(u-2)+1(u-2)=0$

$(u-2)(3u+1)=0$

$u=2 \quad u=-\frac{1}{3}$

$x^{\frac{1}{2}}=2 \quad x^{\frac{1}{2}}=-\frac{1}{3}$

$x=4 \quad x=\frac{1}{9}$

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You Try

$3w-14\sqrt{w}+8=0$

$-\frac{24}{3}=-8+8$

$u=\sqrt{w}$ or $u=w^{\frac{1}{2}}$

$u^2=w \quad u^2=w$

$3u^2-14u+8=0$

$3u^2-12u-2u+8=0$

$3u(u-4)-2(u-4)=0$

$(3u-2)(u-4)=0$

$u=\frac{2}{3} \quad u=4$

$\frac{2}{3}=\sqrt{w} \quad 4=\sqrt{w}$

$w=\frac{4}{9} \quad w=16$

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Solve

$4x^{-2}+13x^{-1}-12=0$

$\frac{1}{x^n}=\left(\frac{1}{x}\right)^n$

$\frac{4}{x^2}+\frac{13}{x}-12=0$

$4\left(\frac{1}{x}\right)^2+13\left(\frac{1}{x}\right)-12=0$

$u=\frac{1}{x}$ so.... $4u^2+13u-12=0$

$-48 \mid -16 \mid 3$

$\frac{x}{1}$

$1=-4x$

$\frac{1}{-4}=\frac{-4x}{-4}$

$4u^2+16u-3u-12=0$

$4u(u+4)-3(u+4)=0$

$(u+4)(4u-3)=0$

$u=-4 \quad u=\frac{3}{4}$

$\frac{1}{x}=-4 \quad \frac{1}{x}=\frac{3}{4}$

$x=-\frac{1}{4} \quad x=\frac{4}{3}$

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You Try

$5x^{-2}+12x^{-1}+4=0$

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Solve

$a^{\frac{2}{3}}+3a^{\frac{1}{3}}-28=0$

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You Try

$a^{\frac{2}{3}}-4a^{\frac{1}{3}}-5=0$

Mar 25-3:54 PM