Activity 1.3.4: Rational Algebraic Expressions

Total points = 71

A. Solutions

1. $2x+1=0$ ✓
   $2x+1-1=0-1$ ✓
   $\frac{2x}{2}=\frac{-1}{2}$ ✓
   $x=-\frac{1}{2}$ ✓
2. $4x^2-1=0$ ✓
   $(2x-1)(2x+1)=0$ ✓
   $2x-1=0$ ✓
   $2x-1+1=0+1$ ✓
   $\frac{2x}{2}=\frac{1}{2}$ ✓
   $x=\frac{1}{2}$ ✓
   $2x+1=0$ ✓
   $2x+1-1=0-1$ ✓
   $\frac{2x}{2}=\frac{-1}{2}$ ✓
   $x=-\frac{1}{2}$ ✓
3. $(m-3)^2=0$ ✓
   $\sqrt{(m-3)^2}=\sqrt{0}$ ✓
   $m-3=0$ ✓
   $m-3+3=0+3$ ✓
   $m=3$ ✓
4. $25a^2-1=0$ ✓
   $(5a-1)(5a+1)=0$ ✓
   $5a-1=0$ ✓
   $5a-1+1=0+1$ ✓
   $\frac{5a}{5}=\frac{1}{5}$ ✓
   $a=\frac{1}{5}$ ✓
   $5a+1=0$ ✓
   $5a+1-1=0-1$ ✓
   $\frac{5a}{5}=\frac{-1}{5}$ ✓
   $a=-\frac{1}{5}$ ✓
5. $4n^2-4n+1=0$ ✓
   $(2n-1)^2=0$ ✓
   $\sqrt{(2n-1)^2}=\sqrt{0}$ ✓
   $2n-1=0$ ✓
   $2n-1+1=0+1$ ✓
   $\frac{2n}{2}=\frac{1}{2}$ ✓
   $n=\frac{1}{2}$ ✓

B. Solutions

1. $x^2\neq 0$ ✓
   $\sqrt{x^2}\neq\sqrt{0}$ ✓
   $x\neq 0$ ✓
   $\therefore D=\{x|x\neq 0\}$ ✓
2. $2x-1\neq 0$ ✓
   $2x-1+1\neq 0+1$ ✓
   $\frac{2x}{2}\neq\frac{1}{2}$ ✓
   $x\neq\frac{1}{2}$ ✓
   $\therefore D=\left\{x|x\neq\frac{1}{2}\right\}$ ✓
3. $m^2-25\neq 0$ ✓
   $(m-5)(m+5)\neq 0$ ✓
   $m-5\neq 0$ ✓
   $m-5+5\neq 0+5$ ✓
   $m\neq 5$ ✓
   $m+5\neq 0$ ✓
   $m+5-5\neq 0-5$ ✓
   $m\neq -5$ ✓
   $\therefore D=\{m|m\neq 5,-5\}$ ✓
4. $x^2-4\neq 0$ ✓
   $(x-2)(x+2)\neq 0$ ✓
   $x-2\neq 0$ ✓
   $x-2+2\neq 0+2$ ✓
   $x\neq 2$ ✓
   $x+2\neq 0$ ✓
   $x+2-2\neq 0-2$ ✓
   $x\neq -2$ ✓
   $\therefore D=\{x|x\neq 2,-2\}$ ✓
5. $4x^2+4x+1\neq 0$ ✓
   $(2x+1)^2\neq 0$ ✓
   $\sqrt{(2x+1)^2}\neq\sqrt{0}$ ✓
   $2x+1\neq 0$ ✓
   $2x+1-1\neq 0-1$ ✓
   $\frac{2x}{2}\neq\frac{-1}{2}$ ✓
   $x\neq -\frac{1}{2}$ ✓
   $\therefore D=\left\{x|x\neq -\frac{1}{2}\right\}$ ✓

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B. Solutions
1. $x^2\neq 0$ ✓ $\sqrt{x^2}\neq\sqrt{0}$ ✓ $x\neq 0$ ✓ $\therefore D=\{x|x\neq 0\}$ ✓
2. $2x-1\neq 0$ ✓ $2x-1+1\neq 0+1$ ✓ $\frac{2x}{2}\neq\frac{1}{2}$ ✓ $x\neq\frac{1}{2}$ ✓ $\therefore D=\left\{x|x\neq\frac{1}{2}\right\}$ ✓
3. $m^2-25\neq 0$ ✓ $(m-5)(m+5)\neq 0$ ✓ $m-5\neq 0$ ✓ $m-5+5\neq 0+5$ ✓ $m\neq 5$ ✓ $m+5\neq 0$ ✓ $m+5-5\neq 0-5$ ✓ $m\neq -5$ ✓ $\therefore D=\{m|m\neq 5,-5\}$ ✓
4. $x^2-4\neq 0$ ✓ $(x-2)(x+2)\neq 0$ ✓ $x-2\neq 0$ ✓ $x-2+2\neq 0+2$ ✓ $x\neq 2$ ✓ $x+2\neq 0$ ✓ $x+2-2\neq 0-2$ ✓ $x\neq -2$ ✓ $\therefore D=\{x|x\neq 2,-2\}$ ✓
5. $4x^2+4x+1\neq 0$ ✓ $(2x+1)^2\neq 0$ ✓ $\sqrt{(2x+1)^2}\neq\sqrt{0}$ ✓ $2x+1\neq 0$ ✓ $2x+1-1\neq 0-1$ ✓ $\frac{2x}{2}\neq\frac{-1}{2}$ ✓ $x\neq -\frac{1}{2}$ ✓ $\therefore D=\left\{x|x\neq -\frac{1}{2}\right\}$ ✓
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