A. Solutions

1. 2x + 1 = 0

 $X=-\frac{1}{2}$

2. $4x^2 - 1 = 0$

2x - 1 = 0

2x + 1 - 1 = 0 - 1 $\frac{2x}{2} = \frac{-1}{2}$

(2x-1)(2x+1)=0

 $2x - 1 = 0 \checkmark$ $2x - 1 + 1 = 0 + 1 \checkmark$ $\frac{2x}{2} = \frac{1}{2} \checkmark$ $x = \frac{1}{2} \checkmark$ $2x + 1 = 0 \checkmark$

2x + 1 - 1 = 0 - 1 $\frac{2x}{2} = \frac{-1}{2}$

 $\sqrt{(m-3)^2} = \sqrt{0} \checkmark$ $\dot{m} - 3 = 0$

m-3+3=0+3

 $x=-\frac{1}{2}$

 $m = 3 \checkmark$

3. $(m-3)^2 = 0$

2x + 1 - 1 = 0 - 1 $\frac{2x}{2} = \frac{-1}{2}$

 $x=-\frac{1}{2}$ 2. $4x^2 - 1 = 0$

(2x-1)(2x+1)=02x - 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 2x + 1 - 1 = 0 - 1 $\frac{2x}{2} = \frac{-1}{2}$ $x = -\frac{1}{2}$

3. $(m-3)^2 = 0$ $\sqrt{(m-3)^2} = \sqrt{0} \checkmark$ m-3=0m-3+3=0+3

 $m = 3 \checkmark$

4. $25a^2 - 1 = 0$ (5a-1)(5a+1)=05a - 1 = 0 $5a-1+1=0+1\checkmark$ $\frac{5a}{5}=\frac{1}{5}\checkmark$ $a = \frac{1}{5}$ 5a + 1 = 0 $5a+1-1=0-1 \checkmark$ $\frac{5a}{5} = \frac{-1}{5} \checkmark$ $a=-\frac{1}{5}$

Activity 1.3.4: Rational Algebraic Expressions

Total points = 71

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Total points = 71

4. $25a^2 - 1 = 0$

5a - 1 = 0

 $a = \frac{1}{5} \checkmark$ $5a + 1 = 0 \checkmark$

 $a=-\frac{1}{5}$

 $\frac{211}{2} = \frac{1}{2} \checkmark$

 $n=\frac{1}{2}$

5. $4n^2 - 4n + 1 = 0$ $(2n-1)^2 = 0$

(5a-1)(5a+1)=0

 $5a - 1 + 1 = 0 + 1 \checkmark$ $\frac{5a}{5} = \frac{1}{5} \checkmark$

 $5a+1-1=0-1 \checkmark$ $\frac{5a}{5} = \frac{-1}{5} \checkmark$ 1

 $\sqrt{(2n-1)^2} = \sqrt{0} \checkmark$ $2n-1=0 \checkmark$

2n-1+1=0+1 2n-1+1=0+1

5. $4n^2 - 4n + 1 = 0$ $(2n - 1)^2 = 0$ $\sqrt{(2n-1)^2} = \sqrt{0} \checkmark$ $2n-1=0 \checkmark$ $2n - 1 + 1 = 0 + 1 \checkmark$ $\frac{2n}{2} = \frac{1}{2} \checkmark$ $n=\frac{1}{2}$

B. Solutions

1. $x^2 \neq 0$ \checkmark $\sqrt{x^2} \neq \sqrt{0} \checkmark$ $x \neq 0$ $\therefore D = \{x | x \neq 0\} \checkmark$ 2. $2x - 1 \neq 0$ $2x - 1 + 1 \neq 0 + 1$ \checkmark

m ≠ 5 **√**

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

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

4. $x^2 - 4 \neq 0$

 $x \neq 2$ \checkmark

 $x-2\neq 0$ $x-2+2 \neq 0+2$

 $(x-2)(x+2) \neq 0$

B. Solutions

1. $x^2 \neq 0$ $\sqrt{x^2} \neq \sqrt{0}$ $\sqrt{}$ $x \neq 0$ $\therefore D = \{x | x \neq 0\} \checkmark$

2. $2x - 1 \neq 0$ \checkmark $2x - 1 + 1 \neq 0 + 1$ $\frac{2x}{2} \neq \frac{1}{2} \checkmark$ $x \neq \frac{1}{2} \checkmark$

 $\therefore D = \left\{ x | x \neq \frac{1}{2} \right\} \checkmark$ 3. $m^2 - 2\hat{5} \neq 0$ $(m-5)(m+5) \neq 0$ $m-5\neq 0$ $m-5+5 \neq 0+5$ m ≠ 5 **√** $m+5\neq 0$ \checkmark $m+5-5 \neq 0-5$ $m \neq -5 \checkmark$ $\therefore D = \{m | m \neq 5, -5\} \checkmark$

4. $x^2 - 4 \neq 0$ $(x-2)(x+2)\neq 0 \checkmark$ $x-2\neq 0$ $x-2+2 \neq 0+2$ *x* ≠ 2 **√** $x+2\neq 0$ $x+2-2 \neq 0-2$ $x \neq -2$ 5. $4x^2 + 4x + 1 \neq 0$

 $\therefore D = \{x | x \neq 2, -2\} \checkmark$ $(2x+1)^2 \neq 0$ $\sqrt{(2x+1)^2} \neq \sqrt{0} \checkmark$ $2x+1 \neq 0 \checkmark$ $2x + 1 - 1 \neq 0 - 1$ $\frac{2x}{2} \neq \frac{-1}{2} \checkmark$ $x \neq -\frac{1}{2} \checkmark$ $\therefore D = \left\{ x | x \neq -\frac{1}{2} \right\} \checkmark$