Answers

1. $\frac{x^2+3x}{}$ $=\frac{x+3}{x(x+3)}$ $\begin{array}{r}
 -\frac{x+3}{x+3} \\
 = x \checkmark \\
 2x^2 + 8x
\end{array}$

2x 2x(x+4) $=x+4\checkmark$

3. $\frac{x^2-16}{\sqrt{}}$ $\overline{(x-4)}$ (x-4) (x+4) $= x + 4 \checkmark$

 $x^3 + 64$

4. $\frac{x^{2}-4x+16}{x^{2}-4x+16}$

 $x^{2}-4x+16$ $=\frac{(x+4)(x^{2}-4x+16)}{x^{2}-4x+16}$ $= \frac{x^2 - 4x + 16}{x^2 - 4x + 16}$ $= x + 4 \checkmark$ 5. $\frac{2x^2-9x-5}{5}$ $=\frac{x-5}{(2x+1)(x-5)}$

6. $\frac{2x^2 + 4x}{2}$ $=\frac{x+2}{2x(x+2)}$ $-\frac{x+2}{2x}$

 $= \frac{x-5}{2x+1}$

7. $\frac{4x^3 - 8x^2}{1}$ $=\frac{4x^2}{4x^2(x-2)}$ $= \frac{4x^2}{4x^2}$ $= x - 2 \checkmark$

8. $\frac{4x^2-25}{5}$ $\frac{2x-5}{2x-5} \checkmark = \frac{(2x-5)(2x+5)}{2x-5} \checkmark$ $= \frac{2x-5}{2x-5}$ $= 2x+5 \checkmark$

 $8x^3 - 27$ 9. $\frac{6x^{2}-27}{4x^{2}+6x+9}$ $=\frac{(2x-3)(4x^2+6x+9)}{(2x-3)(4x^2+6x+9)}$ $4x^2 + 6x + 9$ =2x-3

10. $\frac{3x^2-12x+12}{x^2-12x+12}$ $= \frac{x-2}{3(x^2-4x+4)}$ $=\frac{x-2}{3(x-2)^2}$ $= \frac{1}{x-2}$ $= 3(x-2) \checkmark$

Activity 1.3.5: Simplifying Rational Algebraic Expressions

Total points = 31

Answers

1. $\frac{x^2+3x}{}$ $=\frac{x+3}{x(x+3)}$

2x 2x(x+4)=x+4

3. $\frac{x^2-16}{}$ $\overline{(x-4)}$ (x-4)(x+4)

 $x^3 + 64$ $\frac{x^2 - 4x + 16}{x^2 - 4x + 16}$ $= \frac{(x+4)(x^2-4x+16)}{2}$ $= \frac{x^2 - 4x + 16}{x^2 - 4x + 16}$ $= x + 4 \checkmark$ 5. $\frac{2x^2-9x-5}{5}$ $=\frac{x-5}{(2x+1)(x-5)}$

 $= \frac{x-5}{2x+1}$ 6. $\frac{2x^2 + 4x}{2}$ x+2 2x(x+2) $= \frac{1}{x+2}$ $= 2x \checkmark$

7. $\frac{4x^3-8x^2}{}$ $=\frac{4x^2}{4x^2(x-2)}$ $= \frac{1}{4x^2}$ $= x - 2 \checkmark$

8. $\frac{4x^2-25}{5}$ $\frac{x^{25}}{2x-5} \checkmark$ =\frac{(2x-5)(2x+5)}{2x-5} \frac{1}{2x-5} \fr $=\frac{2x-5}{2x-5}$ $=2x+5\checkmark$ $8x^3 - 27$

9. $\frac{6x^{2}-27}{4x^{2}+6x+9}$ $=\frac{(2x-3)(4x^2+6x+9)}{4x^2+6x+9}$ =2x-3

10. $\frac{3x^2-12x+12}{x^2-12x+12}$ $= \frac{\sqrt{x-2}}{3(x^2-4x+4)}$ $=\frac{x-2}{(x-2)^2}$ $-\frac{x-2}{x-2}$ $=3(x-2)\checkmark$

Activity 1.3.5: Simplifying Rational Algebraic Expressions Total points = 31

Answers

1. $\frac{x^2 + 3x}{x^2 + 3x}$ x+3 $=\frac{x(x+3)}{x(x+3)} \checkmark$ $=\frac{x+3}{x+3}$ $=x \checkmark$ 2. $\frac{2x^2+8x}{3}$

 $\frac{2x}{2x(x+4)}$ $= \frac{2x}{2x}$ $= x + 4 \checkmark$

3. $\frac{x^2-16}{}$ $\frac{x-4}{(x-4)(x+4)}$ $\begin{array}{r}
x-4 \\
= x+4 \checkmark \\
x^3+64
\end{array}$

 $\frac{1}{x^2 - 4x + 16}$ $= \frac{(x+4)(x^2-4x+16)}{2} \checkmark$ $= \frac{x^2 - 4x + 16}{x^2 - 4x + 16}$ $= x + 4 \checkmark$

5. $\frac{2x^2-9x-5}{5}$ $=\frac{x-5}{(2x+1)(x-5)}$ $-\frac{x-5}{2x+1}$

 $\frac{2x^2+4x}{2} \checkmark$ $\frac{2x+2}{2x(x+2)}$ $-\frac{1}{x+2}$ =2x

7.
$$\frac{4x^3 - 8x^2}{4x^2} \checkmark$$

$$= \frac{4x^2(x-2)}{4x^2} \checkmark$$

$$= x - 2 \checkmark$$

8. $\frac{4x^{2}-25}{2x-5} \checkmark$ $= \frac{(2x-5)(2x+5)}{2x-5} \checkmark$ $= 2x+5 \checkmark$ $8x^3 - 27$

9. $\frac{6x^2-27}{4x^2+6x+9}$ $=\frac{(2x-3)(4x^2+6x+9)}{4x^2+6x+9}$ = 2x - 3 \checkmark

10. $\frac{3x^2-12x+12}{2}$ $=\frac{x-2}{3(x^2-4x+4)}$ $=\frac{x-2}{x-2}$ = $\frac{3(x-2)^2}{x^2-2}$ $= \frac{1}{x-2}$ $= 3(x-2) \checkmark$

Activity 1.3.5: Simplifying Rational Algebraic Expressions Total points = 31

1. $\frac{x^2 + 3x}{4}$ $=\frac{x(x+3)}{x(x+3)}$

Answers

 $= \frac{x+3}{x+3}$ $= x \checkmark$ 2. $\frac{2x^2+8x}{3}$ $=\frac{2x}{2x(x+4)}$ $= \frac{2x}{2x}$ 3. $\frac{x^2-16}{16}$

(x-4)(x+4) $\frac{x-4}{=x+4}$ $x^3 + 64$

 $\frac{1}{x^2 - 4x + 16}$ $= \frac{(x+4)(x^2-4x+16)}{2}$ $= \frac{x^2 - 4x + 16}{x^2 - 4x + 16}$ $= x + 4 \checkmark$ 5. $\frac{2x^2-9x-5}{5}$

 $=\frac{x-5}{(2x+1)(x-5)}$ $-\frac{x-5}{2x+1}$ 6. $\frac{2x^2 + 4x}{2}$

x+22x(x+2) $= \frac{1}{x+2}$ $= 2x \checkmark$

7. $\frac{4x^3 - 8x^2}{4x^3 - 8x^2}$ $4x^{2}$ $=\frac{4x^2(x-2)}{\sqrt{x^2}}$ $-\frac{4x^2}{4x^2}$

8. $\frac{4x^2-25}{2x-5}$ $= \frac{(2x-5)(2x+5)}{2x-5} \checkmark$ = 2x+5 \(\sqrt{} $8x^3 - 27$

9. $\frac{6x^2-27}{4x^2+6x+9}$ $=\frac{(2x-3)(4x^2+6x+9)}{4x^2+6x+9}$

 $= 2x - 3 \checkmark$ 10. $\frac{3x^2-12x+12}{2}$ $=\frac{x-2}{3(x^2-4x+4)}$ $= \frac{x-2}{x-2}$ $= \frac{3(x-2)^2}{x^2-2} \checkmark$ $-\frac{x-2}{3(x-2)}$