

Round 1: Simplify each expression (factor first).

1) $\frac{n^2 + 14n + 48}{n^2 + n - 56} \cdot \frac{n^2 - 17n + 70}{n^2 + 12n + 36}$

2) $\frac{p^2 - 2p - 3}{p^2 + 7p + 6} \cdot \frac{p - 1}{3p - 3}$

Simplify each expression.

3) $\frac{2}{n + 2} \div \frac{n - 7}{n^2 - 5n - 14}$

4) $\frac{n^2 - 1}{n^2 + 6n - 7} \div \frac{n + 1}{9}$

Round 2: Divide Using Long Division (Note: the first should have a remainder and the second should have a remainder of 0).

5) $(x^2 + 6x + 8) \div (x + 1)$

6) $(x^3 + 5x - 6) \div (x - 1)$

Round 3: Simplify each expression. (Get a common denominator first if there is not one already).

$$7) \frac{x+6}{4x+12} - \frac{x+5}{4x+12}$$

$$8) \frac{m-2}{12m-24} + \frac{m-5}{12m-24}$$

$$9) \frac{2}{x-2} - \frac{5}{x-3}$$

$$10) \frac{5}{n-4} - \frac{4n}{n-2}$$

Answers to

$$1) \frac{n-10}{n+6}$$

$$5) x+5+\frac{3}{x+1}$$

$$9) \frac{-3x+4}{(x-3)(x-2)}$$

$$2) \frac{p-3}{3(p+6)}$$

$$6) x^2+x+6$$

$$10) \frac{-4n^2+21n-10}{(n-4)(n-2)}$$

$$3) 2$$

$$7) \frac{1}{4x+12}$$

$$4) \frac{9}{n+7}$$

$$8) \frac{2m-7}{12m-24}$$