

Note: the work is not shown below, but you will have to show your work on the test. You are being graded on your work.

Self-Test 1:**Part A:**

1) $\frac{-26x^{-2}2y^3}{39x^4y^2} = \frac{-4y}{3x^6}$

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

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

Part B:

4) $\frac{2x+1}{5} - \frac{3x-2}{4} = \frac{-7x+14}{20}$

5) $\frac{3}{n^2-5n-36} + \frac{2}{n^2+3n-4} = \frac{5n-21}{(n-9)(n+4)(n-1)}$

Part C:

6) $\frac{4x+5}{3} + \frac{2x-1}{5} = 2$
answer: $x = \frac{4}{13}$

7) $\frac{a}{a-2} - \frac{3}{2} = \frac{2}{a-2}$
answer: you get $a = 2$ but it gives a zero denominator: there are no solutions to this equation.

Part D: Simplify completely:

8) $\sqrt[9]{-1} + \sqrt[37]{0} + \sqrt[4]{1} = 0$

9) $\sqrt{50x^3y^{16}} = 5xy^8\sqrt{2x}$

10) $\sqrt[3]{\frac{a^9}{27b^3}} = \frac{a^3}{3b}$

Self-Test 2: allow 50 minutes

Part A: Simplify each expression completely, writing your answer with only positive exponents.

1) $\frac{\frac{5}{8} - \frac{1}{2}}{\frac{1}{6} + \frac{3}{4}} = \frac{3}{22}$

2) $\frac{\frac{3}{2x} + \frac{5}{3y}}{\frac{4}{x} - \frac{3}{4y}} = \frac{18y+20x}{48y-9x}$

3) $\left(\frac{a^3b^{-2}c}{a^2b^4c^{-3}}\right)^{-1} = \frac{b^6}{ac^2}$

Part B: perform the indicated operation and express answers in simplest form.

4) $\frac{3}{2n} + \frac{5}{3n} - \frac{1}{9} = \frac{57-2n}{18n}$

5) $\frac{2}{y^2+4y+3} - \frac{1}{y^2+5y+6} = \frac{1}{(y+1)(y+2)}$

Part C: Solve each equation:

6) $\frac{3}{4x} + \frac{4}{5} = \frac{9}{10x}$
answer: $x = \frac{3}{16}$

7) $\frac{1}{2x-7} + \frac{x-5}{4x^2-49} = \frac{4}{6x-21}$
answer: $x = 22$

8) $\frac{x}{x+6} = \frac{72}{x^2-36} + 4$
answer: $x = 4$ is the only solution (you also get $x = -6$, which gives a zero denominator)

Part D: Simplify completely:

9) $-27^{4/3} = -81$

10) $(-27)^{4/3} = 81$