201-AN1 Absolute Value – Demonstrate an understanding of the absolute value of real numbers.

I can determine the absolute value of a positive or negative real number.

a) $|-7.8|$ b) $\left|-\frac{3}{4}\right|$ c) $\left|6\frac{1}{3}\right|$

I can relate absolute value of a number to its distance from zero on a number line.

a) Explain the meaning of an absolute value.

May 16-8:12 PM

I can compare and order the absolute values of real numbers.

a) $|-5|, |-7.8|, |3.11|, |0|, \left|6\frac{1}{3}\right|$

b) $|4.2|, |-6.1|, \left|-\frac{3}{4}\right|, \left|-\frac{1}{2}\right|$

May 16-8:13 PM

I can evaluate expressions using absolute values.

a) $|100 - 32| - 2|5 - 6|$

b) $|-26 + 13| - 2|10 - 16|$

c) $\dfrac{|2 - (-8)|}{|3| - |-2|}$

d) $|5 - 4|(5 + 4) - 2(5 + 4)$

May 16-8:13 PM

201-AN2 Radicals – Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands.

I can compare and order radical expressions

Arrange in order from least to greatest.

a) $9\sqrt{2}, 2\sqrt{6}, 8\sqrt{3}, 7\sqrt[3]{2}, 6\sqrt[4]{5}, 4\sqrt{5}$

b) $9\sqrt[3]{3}, 11\sqrt[3]{2}, 8\sqrt{2}, 3\sqrt[4]{8}, 4\sqrt{2}, 3\sqrt[3]{5}$

May 16-8:13 PM

I can express an entire radical as a mixed radical.

a) $\sqrt{54}$ b) $\sqrt[3]{\frac{-16}{135}}$ c) $\sqrt[3]{96}$ d) $\sqrt[3]{-\frac{40}{81}}$

a) $\sqrt{27x^2}$ b) $\sqrt[3]{12x^5}$ c) $\sqrt[4]{-12x^3}$ d) $\sqrt{54x^3}$

I can express a mixed radical as an entire radical.

a) $3\sqrt[3]{4}$ b) $-2\sqrt[4]{\frac{3}{4}}$ c) $5\sqrt[4]{2}$ d) $-3\sqrt[4]{\frac{2}{27}}$

May 16-8:14 PM

I can simplify radical expressions with numerical radicands.

a) $\sqrt{20}+\sqrt{18}+\sqrt{45}-\sqrt{50}$ b) $\sqrt[3]{128}-\sqrt[3]{16}-\sqrt[3]{54}$

c) $\sqrt{63}+\sqrt{40}-\sqrt{90}-\sqrt{28}$ d) $\sqrt[3]{24}-\sqrt[3]{192}-\sqrt[3]{375}$

May 16-8:15 PM

e) $(2\sqrt{3}+3\sqrt{2})(\sqrt{3}-\sqrt{2})$

f) $(\sqrt{3}+8)(2\sqrt{3}-1)$

g) $\dfrac{3\sqrt{22}-9\sqrt{14}}{3\sqrt{2}}$

h) $\dfrac{6\sqrt{2}-4\sqrt{3}}{\sqrt{18}}$

May 17-9:49 AM

I can simplify radical expressions with variable radicands.
I can identify the values of the variable for which a radical expression is defined.

a) $8\sqrt[3]{2x}+7\sqrt{2x}-5\sqrt[3]{2x}+\sqrt{2x}$

b) $5\sqrt{8x^3}+4y\sqrt{75y^3}-2\sqrt{27y^5}-3x\sqrt{50x}$

May 17-9:09 AM

c) $5e\sqrt{24e^3} - 7\sqrt{54e^5} + e^2\sqrt{6e} + 6e$

d) $\sqrt[3]{16v^5} + \sqrt[3]{3w^4} + 2w\sqrt[3]{24w} - 5v\sqrt[3]{54v^2}$

May 17-9:45 AM

e) $(3\sqrt{a} - 2)^2$

f) $(2\sqrt{a} - \sqrt{b})(3\sqrt{a} - 4\sqrt{b}) - (\sqrt{a} - 3\sqrt{b})^2$

May 17-9:49 AM

I can rationalize the denominator of a radical expression with monomial denominators.

a) $\frac{5\sqrt{7}+3}{\sqrt{7}}$ b) $\frac{4\sqrt{5}-2}{\sqrt{5}}$ c) $\frac{9\sqrt{2}-3\sqrt{5}}{\sqrt{12}}$

May 16-8:15 PM

I can use the conjugate to rationalize the denominator of a radical expression with binomial denominators.
I can identify the values of the variable for which a radical expression is defined.

a) $\frac{3\sqrt{2}-6}{3-2\sqrt{6}}$ b) $\frac{5\sqrt{3}+\sqrt{2}}{2\sqrt{6}+4\sqrt{3}}$ c) $\frac{4+2\sqrt{6}}{3\sqrt{2}-4}$

May 16-8:15 PM

I can explain why the square root of a number can be both positive/negative.

May 16-8:16 PM

I can identify the values of the variable for which a radical expression is defined.
I can solve a problem that involves radical expressions.

Tyson has a square dog run with a perimeter of 32 ft. He wants to split the dog run diagonally. What is the length of the diagonal section of fencing that Tyson would need to install? Show your reasoning.

May 16-8:16 PM

201-AN3 Radical Equations – Solve problems that involve radical equations (limited to square roots.)

I can determine restrictions for the variable in a radical equation.
I can determine the roots of a radical equation.
I can verify that the values determined in solving a radical equation are the roots.

a) $3 = 4\sqrt{x}$

b) $2\sqrt{x+1} - 7 = 13$

c) $3\sqrt{x} - 4 = 2\sqrt{x} + 1$

d) $\sqrt{2x-5} = \sqrt{x-7}$

May 16-8:17 PM

I can explain why some roots in a radical equation are extraneous.
I can determine restrictions for the variable in a radical equation.

a) $\sqrt{x-1} = \sqrt{2x+3}$

b) $2 = \sqrt{3x-1}$

c) $\sqrt{3x-1} + 5 = 2$

May 16-8:18 PM

I can solve problems using a radical equation.
I can determine restrictions for the variable in a radical equation.

a) Earth approximates a sphere with a radius 6370 km. The formula for the for the surface area of a sphere is: $SA = 4\pi r^2$. To the nearest kilometer, determine the edge length of a cube with the same surface area as the earth.

May 16-8:18 PM

201-AN4 Equivalent Forms of Rational Expressions - Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials, or trinomials).

I can explain why a given value is non-permissible for a rational expression.
I can determine the non-permissible values for the rational expression.
I can simplify a rational expression.

a) $\dfrac{15x^2yz^3}{20xyz}$

b) $\dfrac{3x^2-8x}{2x}$

c) $\dfrac{x^2+6x+8}{x^2-4}$

d) $\dfrac{x^2+2}{x^2-x-6}$

May 16-8:19 PM

I can determine the non-permissible values for the rational expression.
I can write equivalent forms of rational expressions.

a) $\frac{2x^2 - 7xy + 6y^2}{x^4 - 16y^4}$

b) $\frac{x^4 - 5x^2 + 4}{x^3 + 3x^2 + 2x}$

May 16-8:20 PM

201-AN5 Operations on Rational Expressions – Perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials, or trinomials).

I can determine non-permissible values of rational expressions.
I can determine the sum or difference of rational expressions.
I can simplify a rational expression.

a) $\frac{3x}{4} + \frac{x}{5} - \frac{7x}{10}$

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

May 16-8:20 PM

c) $\frac{4}{5x+5}+\frac{3}{2x+2}$

d) $\frac{x^2-3x+2}{x^2-5x+4}-\frac{x^2+10x+24}{x^2+8x+12}$

May 21-10:03 AM

I can determine non-permissible values of rational expressions.
I can determine the product or quotient of rational expressions.
I can simplify a rational expression.

a) $\frac{12xy}{4z}\times\frac{3xz^2}{y}$

b) $\frac{(x+1)}{(x-2)(x+3)}\times\frac{2x+6}{x^2+x}$

c) $\left(\frac{x^2+8x+15}{6x^2+21x+9}\right)\left(\frac{x-4x^2}{2x^2+9x-5}\right)$

May 16-8:21 PM

d) $\frac{4x^2-12x}{x^2-9} \div \frac{7x^3+7x^2}{x^2+4x+3}$

e) $\frac{\frac{4x+12}{3x+12}}{\frac{3x^2+9x}{(x+4)^2}}$

May 21-10:10 AM

201-AN6 Rational Equations – Solve Problems that involve rational equations (limited to numerators and denominators that are monomials, binomials, or trinomials).

I can determine the non-permissible values of a rational equation.

I can determine the solution to a rational equation algebraically.

a) $x+\frac{2}{x}=3$

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

May 16-8:22 PM

c) $\frac{8x+10}{x-3} - 4 = \frac{10x+4}{x-3}$

d) $\frac{x-1}{x+1} = \frac{2x}{15}$

May 21-10:16 AM

I can determine the non-permissible values of a rational equation.
I can determine the solution to a rational equation algebraically.
I can explain why some solutions of a rational equation may actually be extraneous.

a) $\frac{x^2-5x-6}{x+1} = 2$

b) $\frac{4x+3}{2x-1} - 2 = \frac{6x+2}{2x-1}$

May 16-8:23 PM

I can determine the non-permissible values of a rational equation.
I can determine the solution to a rational equation algebraically.
I can solve problems using rational equations

a) Competing in an endurance race, Shannon cycled for 120 km, then swam for 12 km. Her average cycling speed was eight times faster than her swimming speed. Shannon took 9 hours to complete the race. Calculate her average swimming speed.

May 16-8:24 PM

b) Evan drove 308 km in the same time that Meghan drove 329 km. If Meghan drove on average 6 km/h faster than Evan, calculate her average speed and the time taken for the journey.

May 21-10:21 AM