



Watch on  YouTube

Question 1:

- Quotient of expressions involving exponents

Answer questions on Test Work Page

Question 2:

- Power rules with positive exponents: Multivariate quotients

Question 3:

- Quotient rule with negative exponents: Problem type 1

Question 4:

- Converting between scientific notation and standard form in a real-world situation

- (a) The diameter of Venus at its equator is approximately 1.21×10^4 kilometers. Write this number in standard notation.
 (b) An astronomer's infrared telescope is able to detect radiation with a wavelength of 0.0000268 meters. Write this number in scientific notation.

(a) kilometers 12,100
 (b) meters 2.68×10^{-5}

1-10 x 10ⁿ
 (A) 1.21×10^4 12,100
 (B) 0.0000268 2.68×10^{-5}

Question 5:

- Multiplying binomials with leading coefficients greater than 1

Work shown below on Test Work Page.

Question 6:

- Dividing a polynomial by a monomial: Univariate

Question 7:

- Factoring out a monomial from a polynomial: Multivariate

Question 8:

Question 8:

- Factoring out a constant before factoring a quadratic

Question 9:

- Factoring a perfect square trinomial with leading coefficient greater than 1

Question 10:

- Finding the roots of a quadratic equation with leading coefficient greater than 1

Another example on Test Work Page below.

Question 11:

- Dividing rational expressions involving quadratics with leading coefficients of 1

Divide. $\frac{x^2+x-2}{3x+3} \div \frac{x^2+5x+6}{x+1}$ **FLIP!**

Simplify your answer as much as possible.

$\frac{(x+2)(x-1)}{3(x+1)} \cdot \frac{(x+1)}{(x+3)(x+2)}$

$\frac{x-1}{3(x+3)}$

$\frac{x-1}{3(x+3)}$

Question 12:

- Adding rational expressions with common denominators and monomial numerators

Question 13:

- Adding rational expressions with denominators ax and bx : Basic

Shown on Test Work Page below.

Question 14:

- Square root addition or subtraction

Shown on Test Work Page below.

Question 15:

- Square root multiplication: Basic

Question 16:

- Simplifying a product of radical expressions: Multivariate

Question 17:

- Rationalizing a denominator: Quotient involving a monomial

Show on Test Work Page below.

1 - When the bases are the same:

$(4y+1)(7y+2)$ **FOIL**

If you are multiplying, what do you do to the exponents?

add the exponents
 $x^5 \cdot x^6 = x^{11}$

If you are dividing, what do you do to the exponents?

subtract the exponents
 $\frac{x^5}{x^3} = x^2$

$$\begin{array}{r} 28y^2 + 8y \\ + 7y + 2 \\ \hline 28y^2 + 15y + 2 \end{array}$$

5 - Show your work.

$$\begin{array}{r} -30u - 25 = 9u^2 \\ +30u + 25 \quad +30u + 25 \\ \hline 0 \end{array}$$

$$0 = 9u^2 + 30u + 25$$

$$0 = (3u + 5)(3u + 5)$$

$$3u + 5 = 0 \quad 3u + 5 = 0$$

$$\begin{array}{r} -5 \quad -5 \\ 3u = -5 \\ u = -\frac{5}{3} \end{array}$$

10 - Show your work.

$$\frac{8^4}{7a^4} - \frac{5^7}{4a^7}$$

LCD
highest exponent
28a

$$\frac{32}{28a} - \frac{35}{28a} = \boxed{\frac{-3}{28a}}$$

13 - Show your work.

$$4\sqrt{48} + \sqrt{27}$$

Factorization of 48: 2, 3, 2, 2, 2, 2, 3
 Factorization of 27: 3, 3, 3

$$4 \cdot 2 \cdot 2 \sqrt{3}$$

$$16\sqrt{3} + 3\sqrt{3} = \boxed{19\sqrt{3}}$$

14 - Show your work.

$$\sqrt{\frac{2}{y}} = \frac{\sqrt{2}}{\sqrt{y}} \cdot \frac{\sqrt{y}}{\sqrt{y}} = \frac{\sqrt{2y}}{y}$$

$$\boxed{\frac{\sqrt{2y}}{y}}$$

17 - Show your work.