



1. Simplify $\frac{(3xy^3)^{-4}}{3x^{-6}y(x^{-5}y)^2}$ with positive exponents only.

2. Expand and simplify $(7x + 5)(x - 11) - 3(x + 5)^2$.

3. Simplify $\frac{2x^2 + 9x + 10}{x^2 - 4} \cdot \frac{x^2 + 5x}{(x + 5)(x - 2)}$.

4. Simplify $\frac{1 - \frac{2}{x}}{3 + \frac{1}{x}}$.

5. Rationalize the denominator and simplify the expression $\frac{\sqrt{a}}{\sqrt{b}}$

7. Cosmodome sells 76 tickets and collects \$1458 on a certain occasion. If regular tickets cost \$23 each and student tickets cost \$18, how many of each were sold?

8. Solve for x : $x(x + 8) = 3$.

9. Solve for x: _____ .

10. Solve for x: $1 + \frac{3}{x - 2} = \frac{12}{(x + 2)(x - 2)}$.

11. Solve for x : $9^{3x+7} = 243^{x-2}$.

12. Solve for x : $9^{3x+7} = 241$.

20. a. A surveyor stands on a 30-foot high cliff directly above one bank of a river. From there, the angle of depression to the opposite bank is 23° . How wide is the river? Correct your answer to 4 decimal places.

b. Find the exact value of $\csc 45^\circ \tan 60^\circ$.

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$$\begin{array}{r}
 4 \quad \overline{19} \\
 3 \\
 5 \\
 24 \\
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 \end{array}$$

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"0, 15\$

" 3,0\$ "5,0\$

"1, 16\$

' % 16

2.45