

Algebra review

Name _____

1. Evaluate each expression without using a calculator

a) $\left(\frac{2}{3}\right)^{-2}$

b) $16^{-3/4}$

2. Simplify

$$\left(\frac{2x^{3/2}y^3}{x^2y^{-1/2}}\right)^{-2}$$

3. Expand and simplify

a)

$$(x + 3)(4x - 5)$$

b)

$$(\sqrt{a} - \sqrt{b})(\sqrt{a} + \sqrt{b})$$

4. Factor the expression

a)

$$2x^2 + 5x - 12$$

b)

$$4x^2 - 25$$

5. Simplify

a)

$$\frac{\frac{y}{x} - \frac{x}{y}}{\frac{1}{y} - \frac{1}{x}}$$

b)

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

6. Evaluate $\frac{f(x+h)-f(x)}{h}$ for $f(x) = 3x^2 - 4x + 2$

7. Find an equation of the line that contains the points $(-3,2)$ and $(1,1)$.

8. Simplify

a) $e^{3\ln 2}$

b) $\ln\left(\frac{1}{e}\right)$

9. A rectangular field is to be fenced using 330 yards of fencing. Find an expression for the area in terms of the length of one side, x .

10. Simplify

$$\frac{1}{\sqrt[5]{x^2}}x^2$$

11. Are the following statements true?

a) $\sqrt{x^2 + y^2} = x + y$

b) $(a + b)^{-1} = a^{-1} + b^{-1}$

c) $\frac{1}{a + b} = \frac{1}{a} + \frac{1}{b}$