

Elementary Algebra Sample Common Final #2

1) Solve for a $\frac{1}{3} + \frac{a+3}{2} = \frac{a}{3} + 3$

2) Solve for t $t^2 - 10t + 21 = 0$

3) Solve for a $4a^2 - 4a + 5 = 0$

4) Solve for b $\frac{b}{2} = 2 + \frac{3}{b+1}$

5) Solve for x $\sqrt{x+3} = x+1$

6) Solve for x and graph the solution set. Write the answer in interval notation.

$$|2x - 7| \geq 9$$

7) Solve the system of equations by any method $\left\{ \begin{array}{l} 2x + y = 1 \\ 3y - 4x = 23 \end{array} \right\}$

8) Solve for p and graph the solution set. Write the answer in interval notation.

$$.24p - .3(.6p - 40) > 1.56p - 3$$

9) Simplify $\frac{1 - \frac{1}{y} - \frac{6}{y^2}}{y - \frac{4}{y}}$

10) Rationalize the denominator and simplify $\frac{\sqrt{15}}{\sqrt{5} - \sqrt{3}}$

11) Simplify $\frac{7+3i}{1+i}$

12) Simplify $\frac{2048 + 64 \div 32}{2^5 - 2^4 - 2^3}$

13) Simplify $\sqrt{27} + 5\sqrt{12} - \sqrt{147}$

14) Simplify $\frac{(8x^3y^{-6})^{2/3}}{(x^{-2}y^6)^{-3}}$

15) Factor $8x^3 + 27$

16) Factor $18x^3 + 27x^2 - 50x - 75$

17) Graph the inequality $5x - 3y > 15$

18) Graph $y = x^2 + 6x + 8$

19) Graph $x^2 + (y + 1)^2 = 9$

20) Multiply the polynomials. $(2x - 1)^2(x + 3)^2$

21) Divide the polynomials. $(2x^2 + 4x + 5) \div (x - 2)$
Find the quotient and the remainder.

22) Find the equation of the line through the points $(-2, 5)$ and $(2, -3)$.
Write the answer in slope/intercept form.

23) Suppose that $f(x) = \frac{2x}{x+3}$ and $g(x) = (x-2)^3$. Find: $f(-1) + g(4)$

24) The sides of a triangle are given by three consecutive odd integers. The perimeter of the triangle is 345 meters. How long is the longest side of the triangle?

25) How much metal that is 75% iron must be mixed with metal that is 60% iron in order to get 200 kilograms of a metal that is 69% iron?
