

Year 10 Algebra Worksheet



1. If the values of $a + b$ and $a - b$ are 7 and 4 respectively, find the values of $a^2 + b^2$ and ab
2. Given that $f(x) = x^3 - x^2 - ax - b$, has a factor $x - 3$, but leaves a remainder of $13x - 11$ when divided by $x + 4$. Find a and b .
3. If $2x + y = 32$ and $3x + 4y = 68$, find the value of x/y
4. If α, β are the zeroes of a polynomial, such that $\alpha + \beta = 6$ and $\alpha\beta = 4$, then write the polynomial.
5. Solve the given pair of equations : $4z + 3y = 8$ and $6z - 4y = -5$
6. Which set of numbers is the solution to the inequality $x + 13 > 2x > x + 1$?
(a) $1 < x < 13$, (b) $1 < x < 13/2$,(c) $13/2 > x > 1/2$, (d) $15 > x > 2$

7. Solve for x and y :

$$37x + 43y = 123$$

$$43x + 37y = 117$$

8. Find the L.C. M. of $x^3 + x^2 + x + 1$ and $x^4 - 1$.

9. Simplify:

$$\left[1 - \frac{4ax}{(a+x)^2} \right] \times \frac{(x+a)^2}{x^2 - a^2}$$

10. Find the value(s) of k for which the pair of linear equations $kx + 3y = k - 2$ and $12x + ky = k$ has no solution.