Answers to the second exam

December 5, 2008

1. Evaluate: $7 - 5(6 - 8) - 2^4 \div 8 \cdot 2$ $= 13$.
2. Evaluate $b^2 - 4a$ if $a = -3$ and $b = -5$ $= 37$
3. Solve the equation:
$$2(x + 5) = 3(x + 8) - 6 \qquad x = -8$$
4. Solve the equation:
$$|4x - 10| = 30 \qquad x = 10 \text{ or } x = -5$$
5. Find the equation of the line that passes through the points with coordinates $(-1, -7)$ and $(1, -1)$. $y = 3x - 4$
6. Find the point where the lines with equations $y = 5x - 3$ and $2x - 4y = 48$ intersect. $(-2, -13)$
7. Solve the following system: $\begin{cases} 2x - 3y &= 1 \\ 4x + 2y &= 10 \end{cases}$ $(2, 1)$
8. Solve the following system: $\begin{cases} 2x + 3y &= -3 \\ 4x + 6y &= -6 \end{cases}$ The two equations are equivalent. The system is indetermined.
9. Dexter has \$2 all in dimes and quarters. He has a total of 11 coins. How many of each kind of coin does he have? 5 dimes , 6 quarters
10. Simplify: $\left(\dfrac{3x^4y^3z^5}{-4x^2y^4z^9}\right)^2 (2x^3y^4z^2)^3$ $\dfrac{9x^{13}y^{10}}{2z^2}$
11. Multiply: $(2x - 5)(3x^2 - 5x + 7)$ $6x^3 - 25x^2 + 39x - 35$
12. Multiply: $(x - 3)^3$ $x^3 - 9x^2 + 27x - 27$
13. Simplify: $\dfrac{10a^5b^3 - 4a^3b^2 + 6a^4b^6 + 8ab^2}{2ab^2}$ $5ba^4 - 2a^2 + 3a^3b^4 + 4$
14. The area of a rectangle is $x^2 + x - 6$. Its length is $x + 3$. Find its width. $(x - 2)$

15. Perform the long division: $\dfrac{2x^2 - 5x + 5}{x - 1}$ $2x - 3 + \dfrac{2}{x-1}$

16. Factor completely: $3x^3 - 5x^2y + 5y^3 - 3xy^2$ $(x + y)(x - y)(3x - 5y)$

17. Solve: $2x^3 + 3x^2 - 18x - 27 = 0$ $x = -3,$ or $x = 3,$ or $x = -\frac{3}{2}$

18. Solve: $x^2 + 4x + 3 = 0$ $x = -3,$ or $x = -1$

19. Solve: $6x^2 + 7x - 5 = 0$ $x = -\frac{5}{3},$ or $x = \frac{1}{2}$

20. Solve $x^4 - 13x^2 + 36 = 0$ $x = -2,$ or $x = 2,$ or $x = -3,$ or $x = 3$