ALGEBRA 1 NAME _____
Second Semester Study Guide PERIOD _____

1) Find the prime factorization of 91.

2) Find the GCF of $-35a^2$ and 56ab.

3) Factor completely $44x^2y^2 + 12x^2y - 16xy^2$.

4) Solve $25x^2 - 100x = 0$.

5) Solve $y^2 = 14y - 48$.

6) Factor completely $5d^2 + 6d - 8$.

7) Factor completely $y^2 + 13y + 30$

8) Factor completely $b^2 + b - 20$.

9) Factor completely $5x^2 - 9x + 4$.

10) Factor completely, if possible. If polynomial cannot be factored, choose *prime.* $90x^2y - 100xy^2$.

11) Factor $x^2 - 6x - 27$

12) Simplify $\dfrac{20x^2y}{35xy^2}$.

13) State the excluded values of $\dfrac{a^2 + 3a - 28}{a^2 - 3a - 4}$.

14) Simplify $\dfrac{6x^2 - 10x + 4}{2x^2 - 6x + 4}$.

15) Simplify $\dfrac{x^4}{7x^2 - 7y^2} \bullet \dfrac{x + y}{x^5 + x^4}$.

16) Simplify $\dfrac{8m^2n}{p^2} \div \dfrac{m^3n^2}{6p^5}$.

17) Factor $x^2 - 7x + 12$

18) Simplify $\dfrac{5x}{x + 1} + \dfrac{2x}{x + 1}$.

19) Simplify $\frac{x - 5}{9} - \frac{x - 6}{9}$.

20) Simplify $5\sqrt{7} - 2\sqrt{7}$

21) If x = 3 and 3x + y = 7, what is the value of y?

22) Solve the system

$$n = 4m - 14$$
$$2m + 3n = 0$$

23) Solve the system

$$x + 7y = 12$$
$$x + 6y = 9$$

24) To eliminate the variable y in the system of equations,
Multiply the second equations by what number?

$$8x + 6y = 24$$
$$4x - 3y = 12$$

25) Find the two numbers whose sum is 36 and whose difference is 24.

26) If x = 3y + 6 and 2x – 5y = 10, what is the value of y?

27) Simplify $\left(x^5\right)^3$

28) Solve the system for y

6x + 8y = -24 and
4x – 10y = 156.

29) Express 6.32×10^{-5}

30) Simplify $\sqrt{160}$

31) Simplify $(4d^4)(-3d^3)$.

32) Simplify $(-3xy^3)^2(4x^4y^2)^3$.

33) Simplify $\dfrac{5n^{-4}y}{10n^{-3}y^{-5}}$. Assume the denominator is not equal to zero.

34) Find the degree of the polynomial $5x^3y^2 - 4x^2y^2 + 9x^4y^2$.

35) Arrange the terms of $5x^4y^3 + 12x^2y^2 - 3x^3y + 6$ so that the powers of x are in ascending order.

36) Find $(4c^2 - 9c + 5) + (3c^2 - 9c - 16)$.

37) Find $(x + 3)(x + 7)$.

38) Find $(5y + 3z)(5y – 3z)$

39) Solve $x(2x + 4) – 4 = 2 + x(2x + 1)$

40) Find $(4x + 3)(2x^2 - 5x - 9)$.

41) Write $x+\frac{x+4}{x+7}$ as a rational expression.

42) Simplify $\sqrt{200}$

43) Simplify $\sqrt{50x^{10}y^5}$

44) Determine whether the following side measures form a right triangle.

14, 48, 50

45) Find the distance between the pair or points whose coordinates are given

(7, 3), (-4, 11)

46) Simplify $\dfrac{8}{3 - \sqrt{2}}$

47) Simplify $2\sqrt{50} - 3\sqrt{32}$

48) Solve $\sqrt{3x-3} - 6 = 9$

49) If *c* is the measure of the hypotenuse of a right triangle, find the missing value. If necessary, round to the nearest hundredth.
a = 8, b = 15, c = ?

50) If *c* is the measure of the hypotenuse of a right triangle, find the missing value. If necessary, round to the nearest hundredth.
c = 14, a = 9, b = ?