Name _____

Graded Summer Assignment 2024

Due Date: Tuesday, September 10, 2024

CC Algebra 2 Honors

Show all work in the space provided to receive full credit.

1) Solve: $10(x+3)-(-9x-4)=x-5+3$	2) Solve: $10p+9-11-p=-2(2p+4)-3(2p-2)$
3) Solve: $\lvert 4n+5\rvert=19$	4) Solve for x in terms of m and n. $3x+6m=9n$
5) Solve: $\frac{1}{n}=\frac{1}{5n}-\frac{n-1}{5n}$	6) Solve: $\frac{4}{n+2}=\frac{7}{n}$
7) Solve for a: $g=\frac{1+2a}{a}$	8) Seth bought a used car that had been driven 20,000 miles. After he owned the car for 2 years, the total mileage of the car was 49,400. Find the average number of miles he drove each month during those 2 years.

9) Factor and simplify:

$$\frac{3n-12}{n^2+6n-40}$$

10) Factor and simplify:

$$\frac{x^3-x^2-42x}{2x^2-20x+42}$$

11) Factor and simplify:

$$\frac{3b^2+18b}{b+6}\cdot\frac{1}{b+8}$$

12) Factor and simplify:

$$\frac{8v-56}{8v+48}\cdot\frac{v^2+9v+18}{8v^2+24v}$$

13) Factor and simplify:

$$\frac{7a^2}{7a^3+56a^2}\div\frac{2}{a^2+7a-8}$$

14) Simplify:

$$\frac{3a+2b}{6a^3}-\frac{a-4b}{6a^3}$$

15) Given: $k(x) = 2x^2 - 3\sqrt{x}$, find $k(9)$

16) Simplify:

$$(6x - 7y^2)^2$$

17) Solve the system of equations.

$$-2x + 6y = 6$$
$$-7x + 8y = -5$$

18) Solve the system of equations.

$$y + 2x^2 = 6$$
$$y - 2x = 2$$

19) Simplify:

$$\sqrt{384x^4y^3}$$

20) Simplify:

$$-2\sqrt{48a^3b^4c^2}$$

21) Simplify:

$$-\sqrt{45}+2\sqrt{5}-\sqrt{20}-2\sqrt{6}$$

22) Simplify:

$$-3\sqrt{7r^3}\cdot 6\sqrt{7r^2}$$

23) Simplify:

$$\left(5-4\sqrt{5}\right)\left(-2+\sqrt{5}\right)$$

24) Simplify and express in standard form.

$$(8a^2+4)(8a^2-4)$$

25) Factor completely:

$$9k^2+66k+21$$

26) Simplify:

$$(7k-3)(k^2-2k+7)$$

27) Simplify and express with positive exponents only.

$$\frac{4m^4n^3p^3}{3m^2n^2p^4}$$

28) Factor completely:

$$98n^2-200$$

29) Factor completely: $200m^4 + 80m^3 + 8m^2$	30) Simplify and express with positive exponents only. $(3m)^{-2}$
31) Factor completely: $63n^3 + 54n^2 - 105n - 90$	32) Factor completely: $a^3 + 125$
33) Solve: $n^2 - 10n + 22 = -2$	34) Solve: $6b^2 - 13b + 3 = -3$

35) Simplify and express with positive exponents only.

$$\frac{2y^3 \cdot 3xy^3}{3x^2y^4}$$

36) Solve:

$$x - \frac{10}{x} + 3 = 0$$

37) Solve the equation using the quadratic formula in simplest radical form.

$$2x^2 - 6x + 3 = 0$$

38) Solve the equation by completing the square in simplest radical form.

$$x^2 - 4x - 3 = 0$$

39) An astronaut drops a rock off the edge of a cliff on the Moon. The distance, $d(t)$, in meters, the rock travels after t seconds can be modeled by the function $d(t) = 0.8t^2$.
What is the average speed, in meters per second, of the rock between 5 and 10 seconds after it was dropped?

40) Simplify:

$$(3k^4)^4$$