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Each question is worth 5 points. Questions 1 – 5 are multiple choice; you do not need to show your work. Short answers for Questions 6 – 10; show your work to earn full credit – highlight answers in yellow or draw a box around the answer. You can insert additional lines if needed.

Leave answers in exact form unless otherwise directed to approximate the results. Write all fractions in lowest form and round decimals to hundredths. Write answers using positive exponents except when using scientific notation. Simplify all radicals and rationalize the denominators. Write complex numbers in the form $a + bi$. Applied problems must have the variables identified and an equation for full credit.

MULTIPLE CHOICE

Check the box of the one alternative that best completes the statement or answers the question.

- 1.) Write in interval notation. $\{ x \mid 2 \leq x \leq 6 \}$
- $[2, 6]$
 - $(2, 6]$
 - $(2, 6)$
 - $[2, 6)$
 - None of these
- 2.) Solve and give answer using interval notation. $1 < |2w - 9| \leq 3$
- $(-\infty, 3] \cup [5, \infty)$
 - $[3, 5) \cap (4, 6]$
 - $[3, 4) \cup (5, 6]$
 - $(-\infty, 4] \cap [6, \infty)$
 - None of these
- 3.) Determine the terms and degree of the polynomial. $4m^5n^4 - m^4n^6 - 8mn^4 + 4$
- Terms: $4m^5n^4, -m^4n^6, -8mn^4, 4$; degree: 6
 - Terms: $4m^5n^4, m^4n^6, 8mn^4, 4$; degree: 9
 - Terms: $4m^5n^4, -m^4n^6, -8mn^4, 4$; degree: 10
 - Terms: $4m^5n^4, m^4n^6, 8mn^4, 4$; degree: 10
 - None of these
- 4.) Factor completely. $8a^4b - 50b^3$
- $2b(2a^2 + 5b)(2a^2 - 5b)$
 - $2b(2a + 5b)^2$
 - $2b(2a - 5b)^2$
 - $(4a + 10b)(2ab - 5b^2)$
 - None of these
- 5.) Solve for x. $7 - 3(x + 6) = 8 - 4(x + 5)$
- 17
 - 9
 - 2
 - 13
 - None of these

Short answers. You must show your work to earn full credit.
Highlight answers in yellow or draw a box around the answer.

6.) Solve for x. $5x^2 - 11x = 12$

7.) Calculate. $\frac{[7(5-3)^2+14](14+3\cdot 20)}{2^2(2^4-9)}$

8.) Simplify. $\frac{y+1}{y^2-1} - \frac{y}{y-4} + \frac{y^2-1}{y^2-3y-4}$

9.) Simplify. $\left(\frac{2x^3y^{-3}}{x^{-3}y^5}\right)^{-4}$ (You can copy this fraction to show your work if using equation editor.)

10.) The earth is approximately 92,900,000 miles from the sun. If 1 mile = 1620 meters what is the distance to the sun in meters? Give answer in scientific notation.