

MAT.0650 - ELEMENTARY ALGEBRA

CHAPTER 3 (Sep, 22)

• Section 3.1

– Simplify each expression.

1. $\frac{x^{10}}{x^3}$

2. $\frac{48p^5q^3}{6p^3q}$

3. $(2x^2y^2)(y^3)^2(3y^2)^3$

– Find the value of each polynomial for the given value of x .

1. $5x^3 + x^2 - 3$, $x = -1$

2. $-x^2 + 2x^3 - 3x^2 - 2$, $x = -2$

• Section 3.2

– Evaluate.

1. 5^0

2. $(4x)^0$

3. $-7x^0$

4. 0^0

– Write using positive exponents. Simply if possible.

1. x^{-7}

2. 2^{-4}

3. $\frac{x^5}{x^9}$

4. m^8m^{-4}

5. $\frac{a^{-4}}{a^{-9}}$

6. $(3m^{-2})^3$

7. $\frac{(a^4)^{-2}}{(a^{-3})^3}$

– Express each number in scientific notation.

1. 620,000,000,000

2. 0.0000000087

– Compute, and express the final answer in scientific notation.

1. $(1.2 \times 10^{-5})(6 \times 10^8)$

2. $\frac{3.2 \times 10^{15}}{4 \times 10^{-2}}$

• Section 3.3 Express in Mathematical notation and simply if possible.

1. Add $10x^2 - 7x$ and $12x^2 + 4x$.

2. Add $5y^3 - 2y^2$ and $4y + 7y^2$.

3. Subtract $4x^2 - 2x$ from $7x^2 + 6x$.

4. Subtract $6x^2 - 7x + 4$ from $3x^2 - 8$.

5. Subtract $2x + 3$ from the sum of $4x + 5$ and $-8x - 6$.

6. Subtract the sum of $3x + 5$ and $-7x^2 + 1$ from the sum of $2x^2$ and $-3x + 4$.

• **Section 3.4** Multiply and simplify if possible.

1. $(5x^3)(x^2)$
2. $-3(2x + 8)$
3. $(x + 8)(x - 9)$
4. $(a + 3b)(a - 3b)$
5. $(3s + 7t)(8s - 6t)$
6. $(x + 2)(x^2 - 3x + 4)$
7. $x(x + 3)(-x + 2)$
8. $(3x + 7)^2$
9. $(8a - 3)(8a + 3)$

• **3.5** Divide, leave the remainder if there is one.

1. $\frac{16x^7}{-2x^3}$
2. $\frac{20x - 15}{5}$
3. $\frac{18r^4s^5 - 24r^6s^4}{-3rs^3}$
4. $\frac{x^2 - 2x - 15}{x + 3}$
5. $\frac{6x^3 + 14x^2 - 2x - 6}{6x + 2}$
6. $\frac{2x^4 - 2x^2 - 10}{x^2 - 3}$
7. $\frac{x^5 - 1}{x - 1}$