

# Test 3 Review: chap6-7

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1. Perform the indicated operation by removing the parentheses and combining like terms.

$$(6x + 1) - (-8x^2 - 3x)$$

Answer: \_\_\_\_\_

2. Consider the following expression:

$$5x^4 - 6$$

**Step 1.** Determine if the polynomial is a monomial, binomial, or trinomial.

A) Monomial

B) Binomial

C) Trinomial

**Step 2.** Determine the degree and the leading coefficient of the polynomial.

Degree:

Leading Coefficient:

3. Simplify the expression using the properties of exponents. (Note that the answer should contain only positive exponents, and please be sure to expand any numerical portion of the answer.)

$$x^{-3}$$

Answer: \_\_\_\_\_

4. Evaluate the given polynomial at  $x = 1$ .

$$3x^3 - 3$$

Answer: \_\_\_\_\_

5. Multiply the polynomials using the distributive property and combine like terms.

$$(8x - 4)(x + 1)$$

Answer: \_\_\_\_\_

6. Find the product of the binomial factors using the appropriate special product (difference of two squares, square of a binomial sum, or square of a binomial difference).

$$(x + 7)^2$$

Answer: \_\_\_\_\_

7. Multiply the polynomial by the monomial using the distributive property and/or the product rule of exponents.

$$(-x)(-4x^2 + 4x - 2)$$

Answer: \_\_\_\_\_

8. Write  $1.853 \times 10^{-8}$  in decimal form.

Answer: \_\_\_\_\_

9. Simplify the expression using the properties of exponents. (Note that the answer should contain only positive exponents and please be sure to expand any numerical portion of the answer.)

$$\left(\frac{2m^2n^{-2}}{n^3}\right)^3$$

Answer: \_\_\_\_\_

10. Divide the polynomial in the numerator by the monomial in the denominator.

$$\frac{9x^4 - 8x^2 + 5}{x^4}$$

Answer: \_\_\_\_\_

11. Completely factor the expression by grouping. If the polynomial cannot be factored, write "Not factorable by grouping".

$$2bq - 4wz + qw - 8bz$$

Answer: \_\_\_\_\_

12. Factor the trinomial given using the trial and error method. If the trinomial cannot be factored, write *not factorable*.

$$x^2 - 11x + 24$$

Answer: \_\_\_\_\_

13. Complete the square by adding the correct missing term on the left, then factor as indicated:

$$x^2 + \underline{\hspace{1cm}} + \frac{121}{4} = (\underline{\hspace{1cm}})^2$$

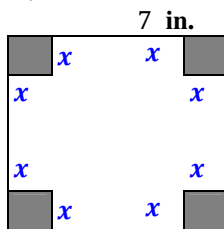
Answer: \_\_\_\_\_

14. Factor the given polynomial by finding the greatest common monomial factor (or the negative of the greatest common monomial factor) and rewrite the expression.

$$5xy^3 - 15xy + 25x^3y$$

Answer: \_\_\_\_\_

15. A square is 7 inches on each side. A small square,  $x$  inches on each side, is cut out from each corner of the original square.



Represent the area of the remaining portion of the square in the form of a polynomial function  $A(x)$ .

Answer: \_\_\_\_\_

Answers

1.  $8x^2 + 9x + 1$

2. **Step 1:** Binomial

**Step 2:** Degree: 4, Leading Coefficient: 5

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

4. 0

5.  $8x^2 + 4x - 4$

6.  $x^2 + 14x + 49$

7.  $4x^3 - 4x^2 + 2x$

8. 0.00000001853

9.  $\frac{8m^6}{n^{15}}$

10.  $9 - \frac{8}{x^2} + \frac{5}{x^4}$

11.  $(2b + w)(q - 4z)$

12.  $(x - 8)(x - 3)$

13.  $x^2 + 11x + \frac{121}{4} = \left(x + \frac{11}{2}\right)^2$

14.  $5xy(y^2 - 3 + 5x^2)$

15.  $49 - 4x^2$  sq. in.