

PreAP Pre-Calculus Summer Review III Algebraic Expressions

I. Perform the indicated operations and simplify.

1.  $5w - 7w + 3w$

2.  $(x^2 + 2x - 1) - (3x^2 + x^3 - 4)$

3.  $(6b\sqrt{a^4} + 3\sqrt{a^2c} - 5ab\sqrt{c}) + (-6ab^2 - 3ab + 6a\sqrt{b^2c})$

4.  $x^2y(xy - 6xy^2)$

9.  $2x(3x + 1)(4x - 2y)$

5.  $(-3xy)(4xy - 5y)$

10.  $(\sqrt{x} + 5)(\sqrt{x} - 5)$

6.  $(3x + 7)(-2x + 5)$

11.  $(3 + \sqrt{2y})^2$

7.  $(2d - 5v)^2$

12.  $(2y + \sqrt{3})(y\sqrt{5} - 1)$

8.  $(5w + 6)(-3w^2 + 4w - 3)$

II. Find the product and arrange in decreasing powers of x.

13.  $(ax + b)(3x - 2)$

14.  $rx(3rx + 1)(4x - r)$

III. Find the product.

15.  $2x^n(8x^k)$

16.  $(3y^{2k} + y^k + 1)(y^k - 3)$

IV. Factor the expression completely, if possible.

17.  $81x^2 + 36x + 4$

18.  $4y^2 - 12y + 9$

19.  $1 - 36u^2$

20.  $16x^4 - 81$

21.  $10x^2 - 8x - 2$

22.  $8 + x^3$

23.  $x^6 - 64$

24.  $y^3 - 3y^2 + 3y - 1$

25.  $-x^3 + 15x^2 - 75x + 125$

26.  $y^6 + 26y^3 - 27$

27.  $x^4 + 2x^2y - 3y^2$

28.  $x^2 - yz + xz - xy$

29.  $a^3 - 2b^2 + 2a^2b - ab$

30.  $x^4 + 4x^2 - 8x - 32$