Name: _____ Date: _____

MATH MONKS

Binomial Theorem Worksheet

1. Find each coefficient described.

(a) Coefficient of n^2 in the expansion of $(2 + 3n)^5$ = _____

(b) Coefficient of m^{20} in the expansion of $(1 - 2m^4)^7$ = _____

(c) Coefficient of a^2b^2 in the expansion of $(2a - b)^4$ = _____

(d) Coefficient of y^2 in the expansion of $(y^2 - 1)^6$ = _____

(e) Coefficient of x^3y^2 in the expansion of $(x - 3y)^5$ = _____

(f) Coefficient of b^4 in the expansion of $(3b^4 - 1)^5$ = _____

(g) Coefficient of y^8x^3 in the expansion of $(y^4 - 3x)^5$ = _____

(h) Coefficient of x^2y^{20} in the expansion of $(x - 2y^4)^7$ = _____

2. Find each term described.

(a) 5th term in the expansion of $(1 - 4m^2)^4$ = _____

(b) 3rd term in the expansion of $(y - 4)^3$ = _____

(c) 4th term in the expansion of $(4y + x)^4$ = _____

(d) 2nd term in the expansion of $(1 - 4n^4)^4$ = _____

(e) 1st term in the expansion of $(2n^4 - 1)^4$ = _____

(f) 2nd term in the expansion of $(3u^2 - 1)^3$ = _____

(g) 4th term in the expansion of $(1 - 5m^3)^3$ = _____

(h) 1st term in the expansion of $(a + b)^5$ = _____

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Answers

1. Find each coefficient described.

(a) Coefficient of n^2 in the expansion of $(2 + 3n)^5$ = 720

(b) Coefficient of m^{20} in the expansion of $(1 - 2m^4)^7$ = -672

(c) Coefficient of a^2b^2 in the expansion of $(2a - b)^4$ = 24

(d) Coefficient of y^2 in the expansion of $(y^2 - 1)^6$ = -6

(e) Coefficient of x^3y^2 in the expansion of $(x - 3y)^5$ = 90

(f) Coefficient of b^4 in the expansion of $(3b^4 - 1)^5$ = 15

(g) Coefficient of y^8x^3 in the expansion of $(y^4 - 3x)^5$ = -270

(h) Coefficient of x^2y^{20} in the expansion of $(x - 2y^4)^7$ = -672

2. Find each term described.

(a) 5th term in the expansion of $(1 - 4m^2)^4$ = $256m^8$

(b) 3rd term in the expansion of $(y - 4)^3$ = 48y

(c) 4th term in the expansion of $(4y + x)^4$ = $16yx^3$

(d) 2nd term in the expansion of $(1 - 4n^4)^4$ = $-16n^4$

(e) 1st term in the expansion of $(2n^4 - 1)^4$ = $16n^{16}$

(f) 2nd term in the expansion of $(3u^2 - 1)^3$ = $-27u^4$

(g) 4th term in the expansion of $(1 - 5m^3)^3$ = $-125m^9$

(h) 1st term in the expansion of $(a + b)^5$ = a^5