Pre-Calculus CP 1 – Section 9.5 ICE Pascal's Triangle & The Binomial Theorem

Name:

Use Pascal's Triangle and/or The Binomial Theorem to expand and find information about the following. Show all work, including work you may enter in your calculator.

1) Use Pascal's Triangle (or your calculator) to find the 5th term in the 8th row.

2) Use Pascal's Triangle (or your calculator) to find the 13th term in the 20th row.

3) Expand $(3x-4)^5$ using Pascal's Triangle and/or the Binomial Theorem.

4) Expand $(2x+5y)^7$ using Pascal's Triangle and/or the Binomial Theorem.

5) Find the term containing x^3 in the expansion of $(7x+3)^9$ using Pascal's Triangle and/or the Binomial Theorem.

6) Find the coefficient *a* of the term ax^2y^8 in the expansion of $(4x-y)^{10}$.

7) Find the **coefficient** of the <u>fifth term</u> in the expansion of $(-3x+y)^{14}$ using Pascal's Triangle and/or the Binomial Theorem.

8) Express $1296x^{12} - 4320x^9y^2 + 5400x^6y^4 - 3000x^3y^6 + 625y^8$ in the form $(a+b)^n$.

9) Express

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\frac{117,649x^{18} + 1,008,420x^{15}y^4 + 3,601,500x^{12}y^8 + 6,860,000x^9y^{12} + 7,350,000x^6y^{16} + 4,200,000x^3y^{20} + 1,000,000y^{24}}{1000}
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in the form $(a+b)^n$.