

Name _____

Accelerated Geometry/Adv Algebra

Date _____ Period _____

SBM #3 Review A

Divide using synthetic division:

1) $(2n^3 - 6n^2 - 26n - 61) \div (n - 6)$

2) $(4x^5 - 40x^4 - 8x^2 + 86x - 58) \div (x - 10)$

Expand:

3) $(x - 5)^3$

4) $(3x + 2y)^4$

Factor completely:

5) $x^4 - 2x^3 + 27x - 54$

6) $-15x^4 + 7x^2 + 2$

Write a polynomial function with the following roots

7) $-2i, 0$ (multiplicity of 3)

8) $-3, 2 + \sqrt{5}$

Simplify the following:

9) $(6x - 5x^4 + 2x^2) - (7x^2 - 8x^4)$

10) $(2x + 5x^3 + 7x^4 - 8) + (7x - 5 + 8x^3) - (8x^2 - 7x^4 + 5x)$

11) $(4x + 3)(8x^2 - 6x - 6)$

12) $(8x^2 + 2x - 2)(7x^2 - 6x + 7)$

Describe the end behavior of each polynomial function.

13) $4x^6 - 2x^3 + 5x^2 - 1$ *as* $x \rightarrow -\infty, f(x) \rightarrow$ *as* $x \rightarrow \infty, f(x) \rightarrow$

14) $-x^3 - 9$ *as* $x \rightarrow -\infty, f(x) \rightarrow$ *as* $x \rightarrow \infty, f(x) \rightarrow$

15) $-3x^4 - 5x^3 + 8x$ *as* $x \rightarrow -\infty, f(x) \rightarrow$ *as* $x \rightarrow \infty, f(x) \rightarrow$

16) $9x^{11} - 8x^9 + 7x^3 + 8$ *as* $x \rightarrow -\infty, f(x) \rightarrow$ *as* $x \rightarrow \infty, f(x) \rightarrow$

17) A coin is flipped 8 times. What is the probability of getting at least 2 heads?

18) You just took your Language Arts Benchmark. Each question had 5 answer choices. What is the probability you got exactly 12 of the 15 questions correct?

Identify the following transformations:

19) $f(x) = \sqrt[3]{-4x - 16} + 8$	20) $f(x) = \left \frac{1}{6}x\right - 4$	21) $f(x) = \frac{1}{8}\sqrt[4]{-x + 9}$	22) $f(x) = -8\sqrt{x + 9}$
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Write the domain and range of the following functions:

23) $f(x) = \sqrt[3]{x - 6} + 8$

24) $f(x) = \sqrt{3(x - 2)} + 8$

25) $f(x) = -\sqrt{(x + 3)} - 4$