A2 Unit 7 Corrective Assignment Name_____

Simplify these terms into terms with only positive exponents. (+3 pts)

1. $(x^8yz)^{-3}$

2. $\left(\frac{-4a^3b^{-1}}{24x^2y}\right)^2$

3. $\frac{(2^3x^{-3}y^2)^{-1}}{xy^{-2}}$

4. $\left(\frac{-1}{(abc)^{-3}}\right)^4$

Evaluate the function at the given value using *synthetic substitution*. Check your answer using *direct substitution*. (+4 pts)

5. $f(x) = 2x^4 - 25x^2 + 2x - 3$ at $x = -4$

Synthetic substitution:

Direct substitution:

6. $g(z) = a^5 - 2a^4 + 3a^3 - 4a^2 + 5a$ at $a = 2$

Synthetic substitution:

Direct substitution:

Create a polynomial function with degree greater than 2 that has the given end behavior. (+4 pts)

7. As $x \to -\infty, f(x) \to -\infty$
and as $x \to \infty, f(x) \to -\infty$

$f(x) =$ _____

8. As $x \to -\infty, f(x) \to \infty$
and as $x \to \infty, f(x) \to -\infty$

$f(x) =$ _____

9. Graph the function. Label all extrema, zeros, intercepts and end behavior. Round to the nearest hundredth, if necessary. (+16 pts)

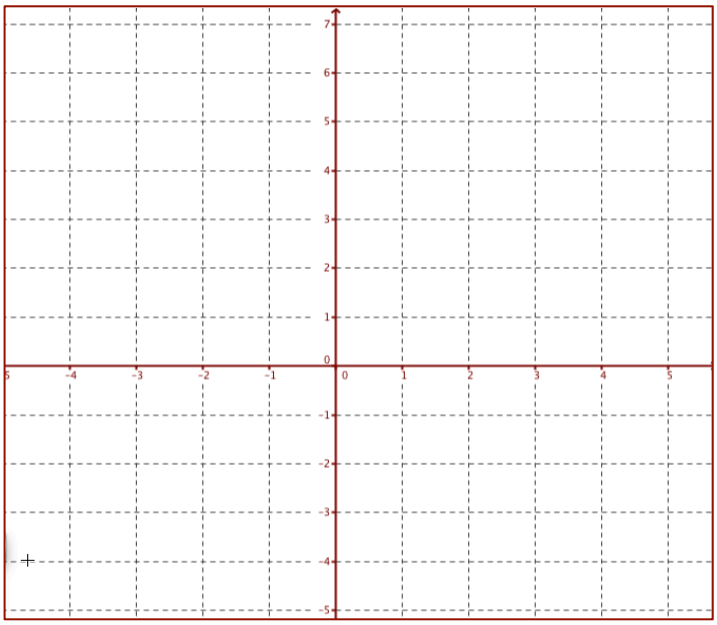
$f(x) = 0.1x^4 - 0.1x^3 - x^2 - x + 3$

Zeros:

y-intercept:

Extrema:

End Behavior:



x	f(x)

Factor each sum or difference in cubes. **(+3 pts)** $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

10. $64x^3 - 125y^3$

11. $x^3 + 1000$

12. Divide $(k^3 + 15k^2 - 63k - 135)$ by $(k + 3)$ using polynomial long division. **(+5 pts)**

13. Now check #12 using synthetic division. **(+3 pts)**

14. Factor $k^3 + 15k^2 - 9k - 135$ completely. Also, find all of the roots. **(+2 pts)**

For 14 – 16, factor completely using the most appropriate method. (+3 pts each) (Hint: Quad Form, Grouping, GCF first…)

15. $230x^6 - 230x^4$

16. $4a^3 - 4a^2 - 9a + 9$

17. $7m^3 - 21m^2 + m - 3$

18. $10x^4 - 29x^2 + 10$

Solve by factoring. (+4 pts)

19. $9x^4 + 25 = 30x^2$

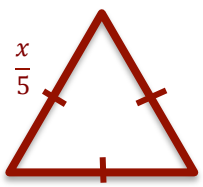
20. $x^3 + x^2 = 5x + 5$

21. $28x^5 = 343x^3$

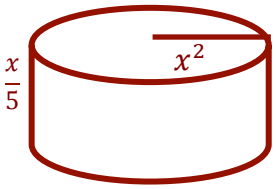
22. Bean collects polynomials for his favorite weekend activity: Fear Factoring! This week, Bean collects $f(x) = 2x^3 - 41x^2 + 55x + 38$ as his polynomial. Help Bean factor this polynomial completely. Here's a hint: one factor is (x − 19). **(+4 pts)**

23. Write an expression for the figure's area or volume in terms of x. **(+3 pts)**

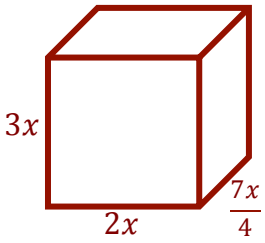
a. $A = \frac{\sqrt{3}}{4}s^2$



b. $V = \pi r^2 h$



c. $V = lwh$



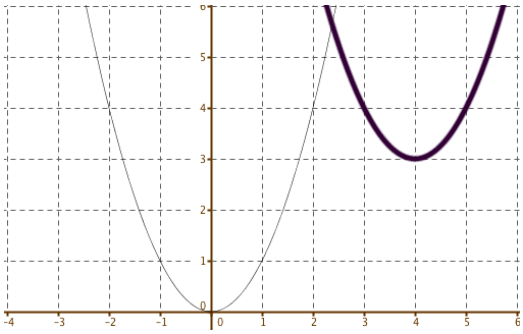
Algebra Skillz (½ pt. Each)

GRAPH

Below, the graph of $f(x) = (x-4)^2 + 3$ is sketched in bold. Its parent function $f(x) = x^2$ is represented by the thin curve.

24. Describe the translation of the parent graph.

25. How does the translation relate to the equation?



SIMPLIFY

26. $\sqrt{48} - 5\sqrt{16} - 2\sqrt{3}$

27. $2\sqrt{7}(4 - 2\sqrt{7})$

SOLVE

28. Solve:
$-x(2x-1)(2x+1) = 0$

29. Factor and solve.
$2x^2 - 39x - 20 = 0$