Last Name:_____ First Name:_____

1.) _____

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3.) _____

4.) _____

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7.) _____

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12.) _____

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14.) _____

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16.) _____

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18.) _____

19.) _____

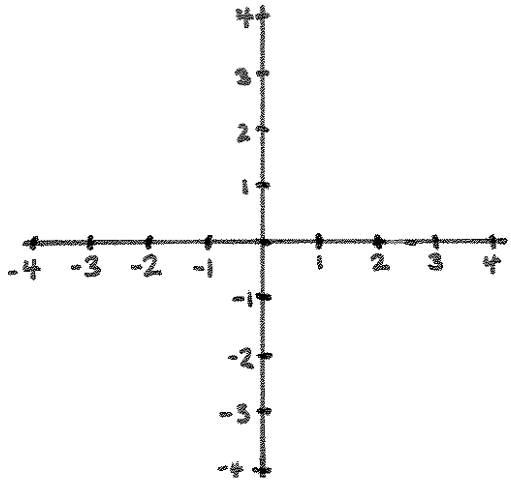
20.) _____

21.) _____

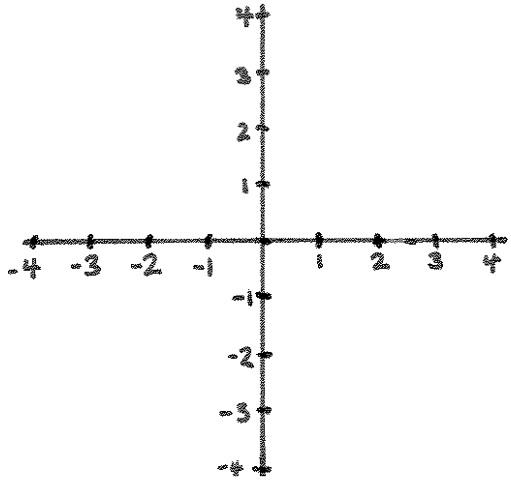
22.) _____

23.) _____

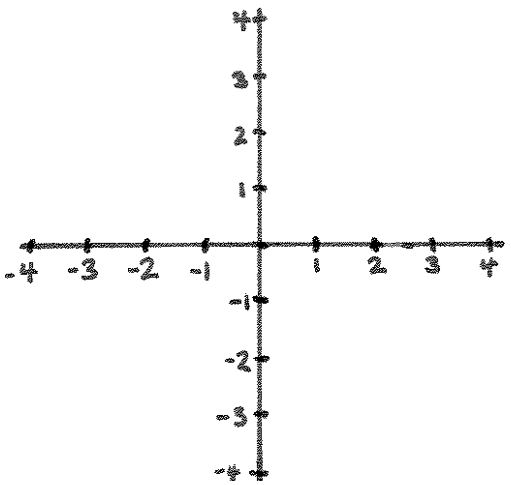
24.) $-2\sqrt[3]{x-1}$



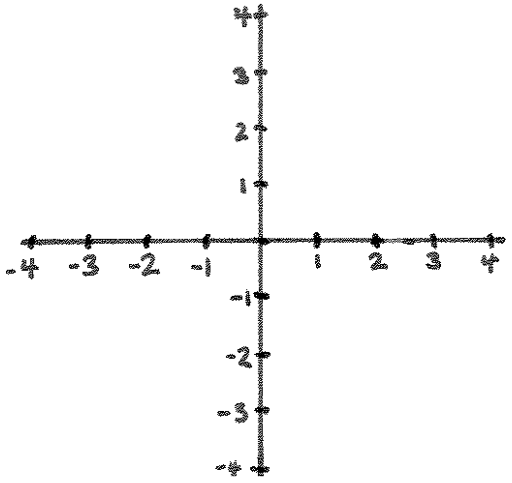
25.) $\sqrt{-x}-1$



26.) $2x-3$



27.) $-3(x+2)^2-1$



Second Practice Exam

True/False

For #1-8 write the entire word "True" or the entire word "False".

1.) $a(b+c) = ab + ac$

2.) $(x+y)^n = x^n + y^n$

3.) $\sqrt[n]{x+y} = \sqrt[n]{x} + \sqrt[n]{y}$

4.) $(xy)^n = x^n y^n$

5.) $\sqrt[n]{xy} = \sqrt[n]{x}\sqrt[n]{y}$

6.) $(\frac{x}{y})^n = \frac{x^n}{y^n}$

7.) $\sqrt[n]{\frac{x}{y}} = \frac{\sqrt[n]{x}}{\sqrt[n]{y}}$

8.) $-x^4 + x^3 + 17x^2 - 3x + 4$ has 7 roots.

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Algebra

9.) Find x where $(7-x)^3 + 4 = 12$.

10.) If $g(x)$ is an invertible function, and $g(2) = 7$, then what is $g^{-1}(7)$?

11.) Find the inverse of $f(x) = \sqrt[3]{2x+4}$. (You can check your answer by seeing if $f^{-1} \circ f(x) = x$.)

12.) What is the implied domain of $g(x) = 2\sqrt[2]{5x+1} - 23$? (Your answer should be an interval.)

13.) Suppose that $a \neq 0$ and that $b^2 - 4ac \geq 0$. Write the following number as an integer in standard form:

$$a\Big(\frac{-b+\sqrt{b^2-4ac}}{2a}\Big)^2 + b\Big(\frac{-b+\sqrt{b^2-4ac}}{2a}\Big) + c$$

14.) Find $\dfrac{4x^4 - 6x^3 + 2}{2x^2 - 1}$

15.) Find $\dfrac{4x^3 - 5x + 6}{x - 2}$

16.) What is the slope of the straight line in $\mathbb{R}^2$ that passes through the points $(2, 4)$ and $(5, 10)$?

17.) Complete the square: Write $2x^2 - 4x + 5$ in the form $\alpha(x + \beta)^2 + \gamma$ where $\alpha, \beta, \gamma \in \mathbb{R}$.

18.) How many roots does $2x^2 - 6x + 10$ have?

19.) Find the roots of $-2x^2 + 6x + 2$

20.) Find a root of $-3x^3 - 7x^2 - 4x - 4$

21.) (2 points) Completely factor $-2x^3 + 6x^2 - 2x + 6$. (Hint: 3 is a root.) (Your answer should be a product of a constant and maybe some linear and quadratic polynomials that have leading coefficients equal to 1, and such that any of the quadratics in the product have no roots.)

22.) (2 points) Completely factor $2x^3 + 11x^2 - 20x + 7$. (Hint: -7 is a root.) (Your answer should have the same form as described in #21.)

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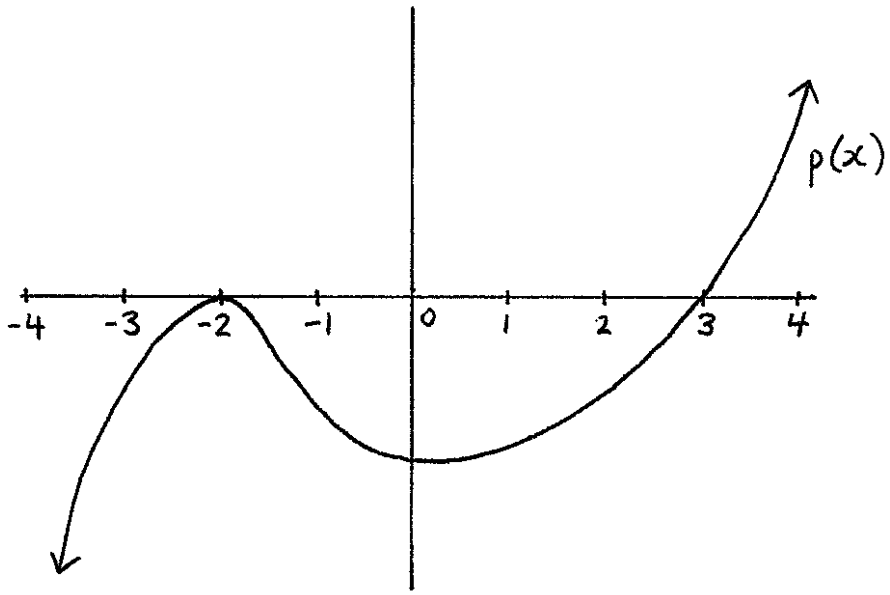
Graphs

23.) List all of the monic linear factors of $p(x)$ that you know of from the graph below.



24.) Graph $-2\sqrt[3]{x-1}$ and label its x- and y-intercepts.

25.) Graph $\sqrt{-x}-1$ and label its x- and y-intercepts.

26.) Graph $2x-3$ and label its x- and y-intercepts.

27.) Graph $-3(x+2)^2-1$ and label its vertex.