

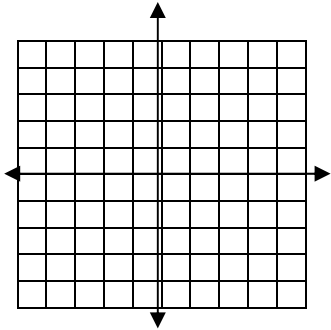
College Algebra

Polynomial Zeros REVIEW

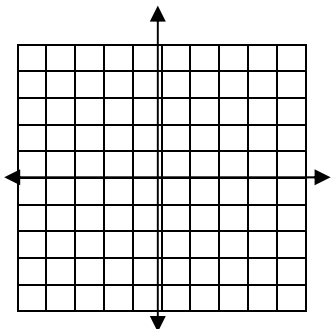
no graphing calculator on this part

1-2 Graph these. Find the vertex and at least 2 additional points.

1. $y = -(x+2)^2 - 1$



2. $y = x^2 + 8x + 1$



3. Would the graph of $y = 120x^2 - 12x + 13$ have a maximum value or a minimum value?

4. Name the vertex.
 $y = 4x^2 + 24x - 25$

5. -6 Using the leading (dominant) term, indicate the end behavior of these graphs.

5. $y = -8x^5 - 3x^4 + x - 4$

6. $y = 2x^2 + x - 10$

7. Use synthetic division to find the quotient + $\frac{\text{remainder}}{\text{divisor}}$.

$(3x^3 - 4x + 2) \div (x - 2)$

8. Show 2 ways to find $P(2)$.

$P(x) = 4x^3 + x^2 - 1$

9. Is $x = -3$ a zero of this polynomial? Show work, then answer yes or no.

$P(x) = x^4 + 2x^3 - x^2 + 5x + 6$

10. Is $x-2$ a factor of $3x^4+2x^3-x^2+5x+6$? Show work, then answer yes or no.

11. A quadratic equation has these solutions: -1 and 4 . Write an equation that has these solutions.

12. Use Descartes' Rule of Signs to tell the possible number of real zeros of:

$$P(x) = 3x^3 - 4x^2 + 5x - 7$$

+ real:

- real:

Now tell how many imaginary zeros it has:

13. $2+3i$ is a zero of a polynomial with real coefficients. Name one other zero.

14. List all the possible rational zeros (p/q) of $P(x) = 6x^3+2x^2-8x+4$

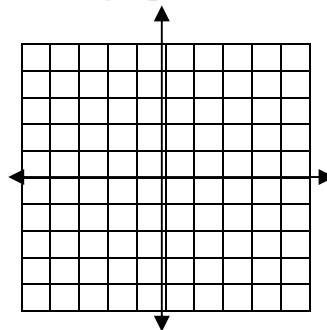
15. Find all the zeros of $P(x) = 2x^3+x^2-12x+9$

16. Find all the zeros of $P(x) = x^4+x^3+7x^2+9x-18$

17. Find all the solutions of this equation. (Hint: factor)

$$x^4 + 6x^2 + 9 = 0$$

18. $y = (x-2)^3(x+1)^4$
Use end behavior and zeros to sketch the graph.



calculator ok on this page.

19-20. Solve these inequalities.
Answers are intervals. You may
use graphing calculator or another
method.

19. $x^2 + 8x + 15 \geq 0$

20. $2x^2 - 5x - 3 \leq 0$

21. $P(x) = x^4 - 2x^3 - 9x^2 - 14x - 6$ has
one negative real zero. Use your
calculator to find it to the nearest
hundredth.

3.1 quiz
no calculator on this part

1. $\sqrt{-50} =$

2. $(3+2i)-(5-4i)=$

3. $(3+2i)(5-4i)=$

4. $\frac{3+2i}{5-4i} =$

3.1 quiz
no calculator on this part

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3.3 a. quiz

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1- 5 Solve by any noncalculator method. Show work. Complex solutions are possible. Leave answers in exact form.

1. $2x^2 = 32$

2. $(x-3)^2 = 7$

3. $x^2 = -64$

4. $x^2 + 2x + 5 = 0$

5. $x^2 - 3x = 5$

3.3 a. quiz

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