

12 Days of ChristMATH

Date _____ Period _____

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Solve each inequality and write your answer in INTERVAL NOTATION!

1) $3 + |-6x - 5| < -56$

2) $|-3 - 5n| - 6 \geq 17$

Divide. Write your answer in the form $P(x) = D(x)Q(x) + R(x)$

3) $(a^3 - 10a^2 + 20a + 26) \div (a - 4)$

4) $(3n^4 + 5n^3 + 7) \div (3n + 5)$

Using the FTA, state the number of complex zeros for each function.

5) $f(x) = x^5 - 5x^4 - 14x^3 + 70x^2 + 48x - 240$

6) $f(x) = x^4 + 7x^2 - 18$

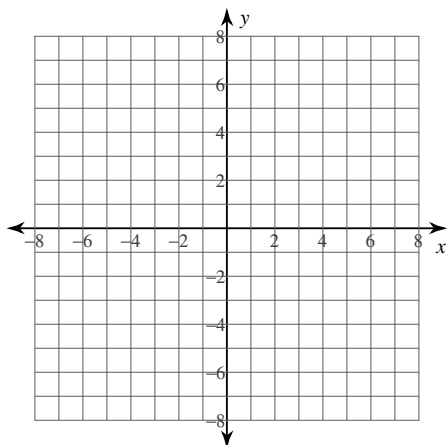
State the possible rational zeros for each function. Then find all rational zeros.

7) $f(x) = 5x^3 + 19x^2 - 29x + 5$

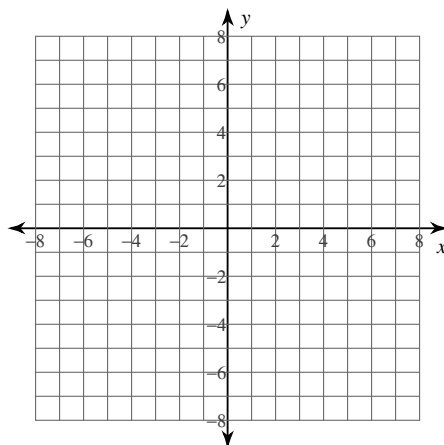
8) $f(x) = 2x^3 - x^2 - 2x + 1$

Sketch the graph of each function.

9) $f(x) = -x^3 + 2x^2$

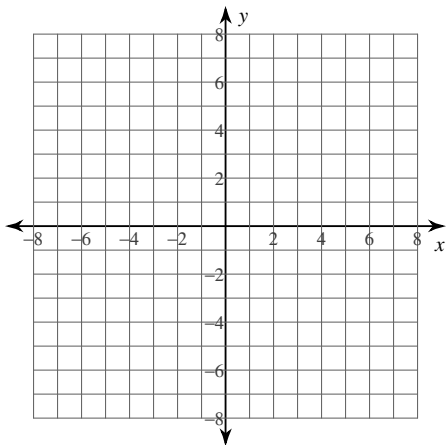


10) $f(x) = -x^4 + 4x^2 - 3$

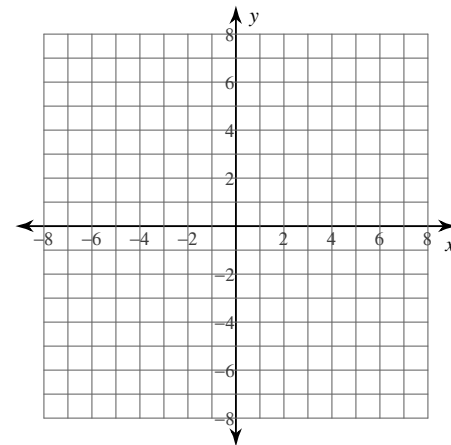


Graph each function.

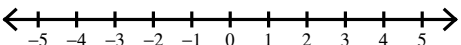
11) $f(x) = \frac{2x + 6}{x + 4}$

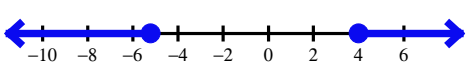


12) $f(x) = \frac{1}{3x - 9}$



Answers to 12 Days of ChristMATH (ID: 1)

1) No solution. : 

2) $n \leq -\frac{26}{5}$ or $n \geq 4$: 

3) $a^2 - 6a - 4 + \frac{10}{a-4}$ 4) $n^3 + \frac{7}{3n+5}$ 5) 5

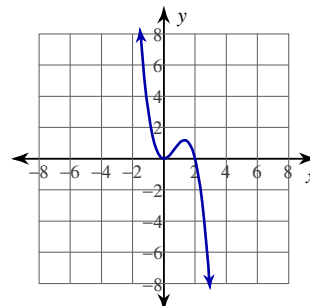
6) 4

7) Possible rational zeros: $\pm 1, \pm 5, \pm \frac{1}{5}$ 8) Possible rational zeros: $\pm 1, \pm \frac{1}{2}$

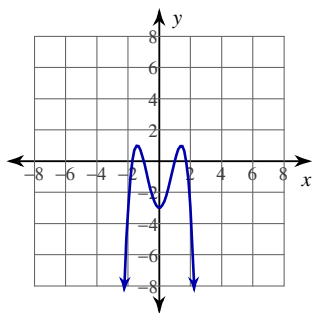
Rational zeros: $\left\{1, \frac{1}{5}, -5\right\}$

Rational zeros: $\left\{1, \frac{1}{2}, -1\right\}$

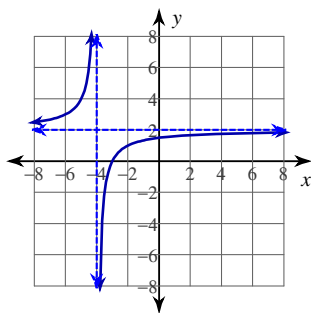
9)



10)



11)



12)

