

1. Find all the zeros of:
 $f(x) = x^4 - 5x^3 + 2x^2 + 22x - 20$

Zeros:

Product of linear factors:

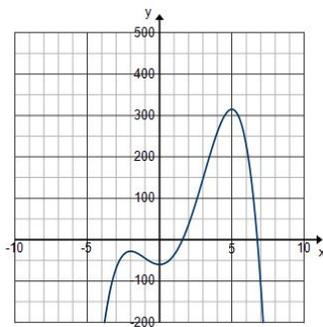
2. Find all the zeros of:
 $f(x) = 2x^3 + 3x^2 - 32x + 15$

Zeros:

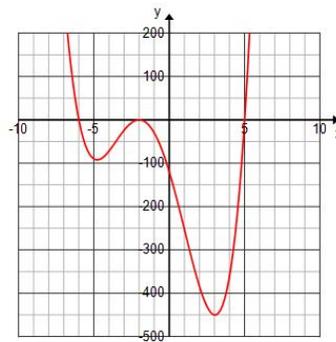
Product of linear factors:

3. Match the equations to the graphs without using a calculator:

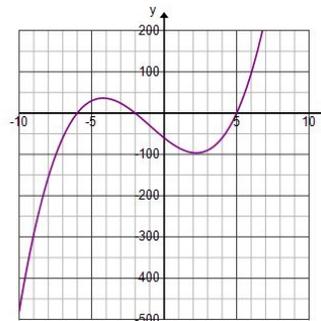
- A. $f(x) = -x^3 - 3x^2 + 28x + 60$
- B. $f(x) = -x^4 - 5x^3 + 22x^2 + 116x + 120$
- C. $f(x) = x^3 + 3x^2 - 28x - 60$
- D. $f(x) = x^4 + 5x^3 - 22x^2 - 116x - 120$
- E. $f(x) = -x^4 + 4x^3 + 20x^2 - 60$
- F. $f(x) = -x^3 - 2x^2 + 25x + 120$



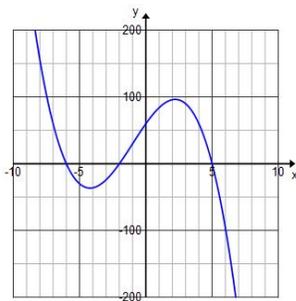
1.



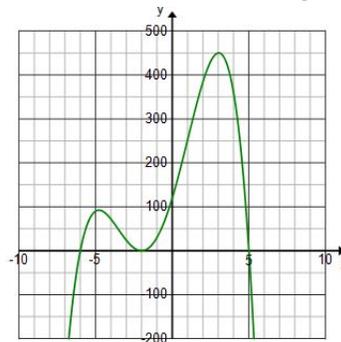
2.



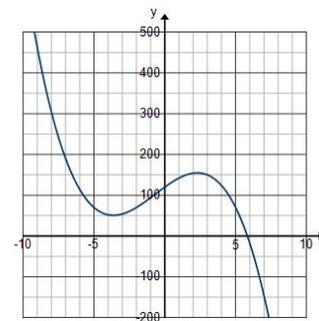
3.



4.

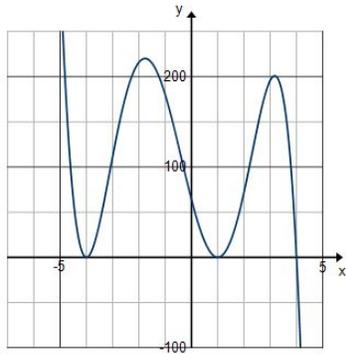


5.



6.

4. Write the equation for the graph at the right with an appropriate scale factor or either 1 or -1.



5. Find a polynomial with

6. Divide using long division.

$$\frac{6x^3 + 2x^2 + 22x}{2x^2 + 5}$$

7. Find all the zeros of:

$$P(x) = x^3 + 1x^2 - 21x - 5$$

8. Find the average rate of change from $x = a$ to $x = a+h$.

$$f(x) = \frac{5x}{x+1}$$

9. Find all the zeros:

$$P(x) = x^3 - 4x^2 - 3x + 12$$

10. Sketch the graph using a table, then complete the following:

$$f(x) = \sqrt{x^2 - 4}$$

Domain:

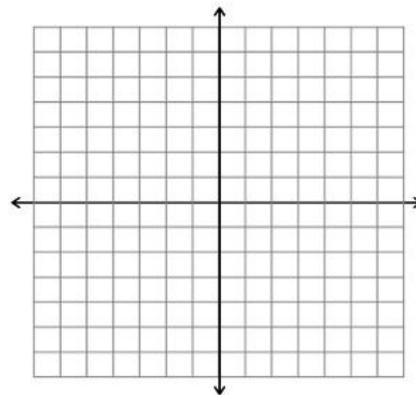
Range:

Is this a function:

Is this one-to-one?

Interval of Increasing:

Interval of Decreasing:



11. Sketch the graph using a table, then complete the following:

$$y = |2x - 5| - 3x$$

Domain:

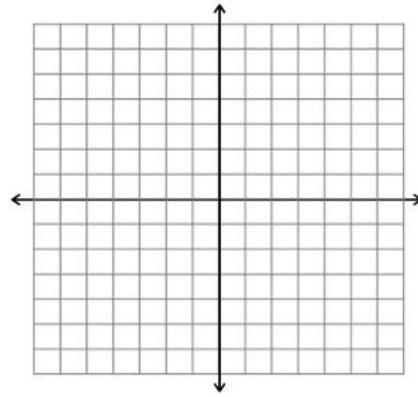
Range:

Is this a function:

Is this one-to-one?

Interval of Increasing:

Interval of Decreasing:

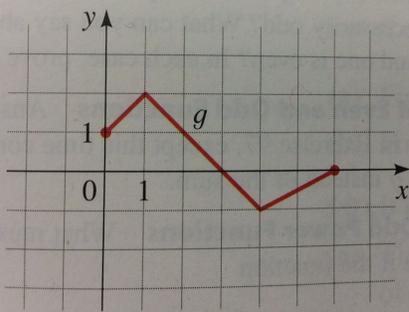


12.

The graph of g is given. Use it to graph each of the following functions.

(a) $y = g(2x)$

(b) $y = g(\frac{1}{2}x)$

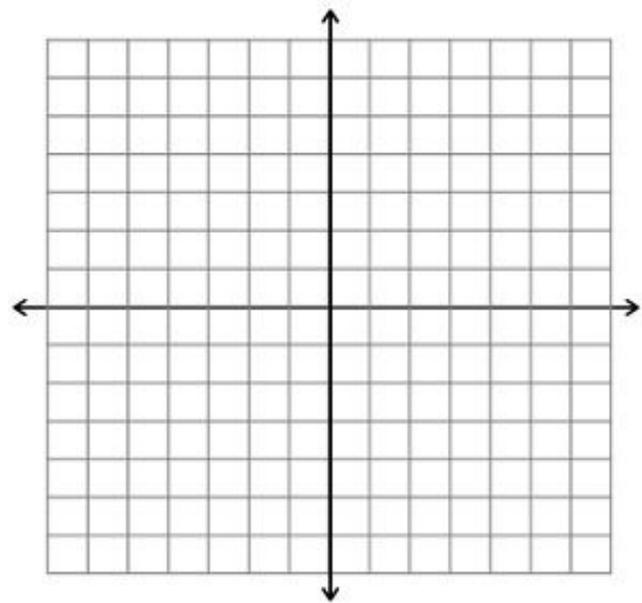


13. Use the graph at the left to graph:

c. $y = 2 - f(x)$

d. $y = 3f(-x)$

e. $y = \frac{1}{2}f(x - 4)$



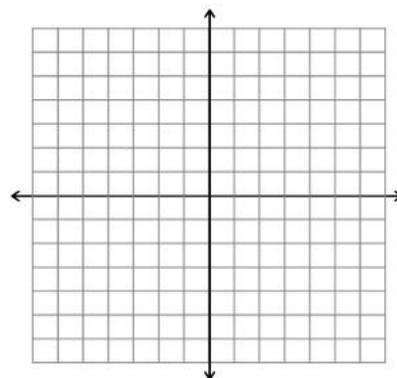
14. Sketch the graph of the following: Make sure you label all intercept and local max or mins.

$$f(x) = -4x^2 + 24x - 32$$

Function? One-to-One?

Interval of Increasing?

Interval of Decreasing?



15. Find the composite and then state the domain:

$$f(x) = \frac{5}{x} \quad g(x) = \frac{x}{x+10}$$

Find $g \circ f$

Domain:
and

Find $f \circ g$

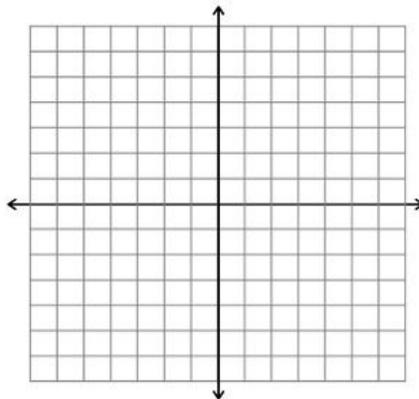
Domain:

16. Find the zeros:

$$f(x) = x^3 - 125$$

17-18 A polynomial is given. a) Find all the real zeros of P. b) Sketch a LABELED graph of P. c) Write in factored form.

17. $P(x) = -x^3 + 4x^2 + 3x - 18$



17. $P(x) = -x^3 + 4x^2 + 3x - 18$

