

SHOW ALL WORK! THIS WILL BE GRADED FOR ACCURACY

You can only get help and work with other Pre-calculus students!!

Each problem is worth 5 points, unless otherwise noted.

1. Mr. Valder bought 7 gallons of different color paints (red & blue) at Home Depot. One of the colors cost \$30 a gallon and the other was \$20 a gallon. If he spent \$160 on paint, how much of each color did he buy?

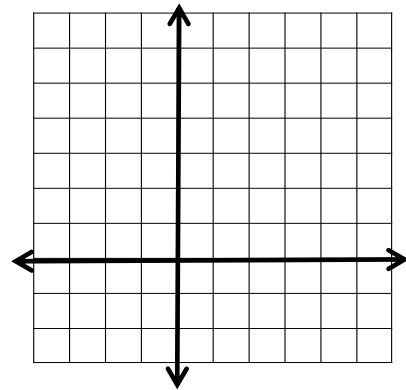
2. The equation $y = \frac{2}{5}(-2x - 7)^3 + 9$ describes a function that is translated from a parent function.
- a. Describe each of the translations with specific values, in the correct order. (5 pts.)

- 1.
- 2.
- 3.
- 4.
- 5.

3. Find the inverse of $y = \frac{x + 2}{2x - 3}$

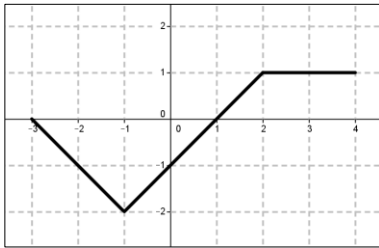
Graph the inverse of $y = \sqrt{x - 2} + 1$

y = _____

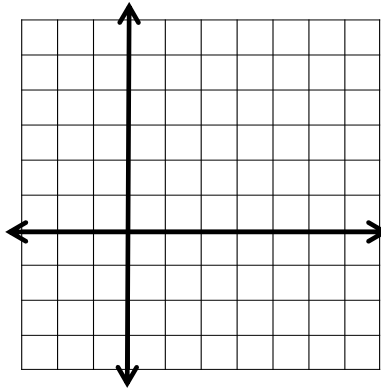


4. Two ships leave port, one sailing east and the other south. At some point later they are 17 miles apart, with the eastbound ship 7 miles farther from the port than the southbound ship. How far is each ship from the port?
5. A graphic artist is designing a poster that consists of a rectangular print with a uniform border. The print is to be twice as tall as it is wide, and the border is to be 3 inches wide. If the area of the poster is to be 680 square inches, find the dimensions of the print. (6 pts.)

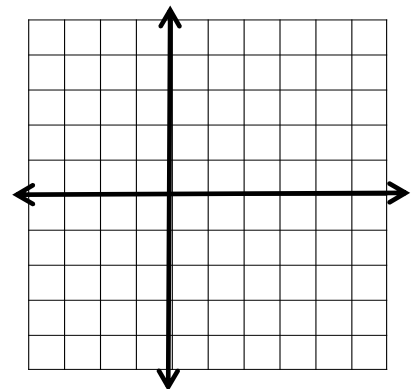
6. Given the graph of $f(x)$, graph each of the following:



a. $2f(x-3) + 1$



b. $f(-2x) - 3$



7. The height of a triangle is 6 cm. more than the length of its base and its area is 20 cm^2 . What is the height?
(6 pts.)

FACTOR: SHOW ALL WORK !

8. $x^2 + ax - bx - ab$

9. $m^{12} + 27b^6$

10. $x^{2n} - 2x^n + 1$

11. $(x^2 - 3)^2 + (x^2 - 3) - 2$

12. $27a^3 - 12a$

13. $x^8 - 82x^4 + 81$

14. $8mn - 10n + 12m - 15$

15. $\frac{1}{6}x^2 + \frac{1}{2}x - \frac{2}{3}$

16. $-15x^2 + 22x + 48$

17. $6x^2 - 55x + 56$

18. $12x^2 - 13x - 120$