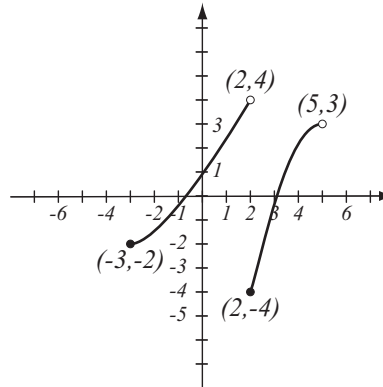


1. (8pts) Use the graph of the function f at right to answer the following questions.

- Find: $f(-3) =$ $f(2) =$
- What is the domain of f ?
- What is the range of f ?
- What are the solutions of the equation $f(x) = 1$?



2. (10pts) Use your calculator to accurately sketch the graph of $y = x^3 - 3x^2 - 5x - 8$.

- Draw the graph on paper and indicate units on the axes.
- Find all the x - and y -intercepts (accuracy: 6 decimal points).

3. (5pts) Write the equation of the line whose x -intercept is 2 and passes through (7, 4).

4. (10pts) Find the equation of the line (in form $y = mx + b$) that is perpendicular to the line $4x - 3y = 6$ and passes through the y -intercept of the given line. Draw both lines.

5. (7pts) Draw the line $y = \frac{2}{3}x + 2$. This line and the x - and y -axes determine a triangle. Find the perimeter of this triangle.

6. (9pts) Let $f(x) = \frac{2x - 5}{x^2 - 4x}$. Find the following (simplify where appropriate).

$$g(4) =$$

$$g(6) =$$

$$g(-3x) =$$

$$g(u + 1) =$$

7. (10pts) Find the domains of the functions below and write them using interval notation.

$$f(x) = \frac{4}{x^2 + 2x - 15}$$

$$g(x) = \frac{\sqrt{2x + 5}}{2x - 5}$$

8. (5pts) Solve the inequality and write your solution in interval notation.

$$-2 \leq 3x + 1 \leq 9$$

9. (10pts) The endpoints of a diameter of a circle are $(-3, 4)$ and $(1, 2)$.

a) Find the equation of the circle.

b) Draw the circle in the coordinate plane.

10. (12pts) Linda has these options for a data plan for her cell phone:

A) \$18 flat fee for the first two GB, and then \$7 per GB for usage beyond the first two GB.

B) \$8 per GB.

Assuming Linda always uses at least 2 GB of data, for which amount of data is plan B better?

11. (14pts) Pablo drives to a job interview in an hour and a half. Returning along the same route, he feels more relaxed and drives 11mph slower, so it takes him an hour and three quarters.

- a) How fast is Pablo driving on the way to and from the job interview?
- b) How far did he travel one-way?

Bonus (10pts) Betty has a total of \$4000 invested in two accounts, one bearing 6% and the other 7% interest. She notices that if she reversed the amounts invested in each account, she would have \$16 more in interest over a year. How much is invested in each account?