NAME _____

| MATH 101-07: FALL 2020 | TEST 1 |
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*You are allowed one page of notes and a calculator. No phones. More than 150pts to earn.* $\boxed{\textit{Box}}$ *your answers for full credit and show work. Thanks!*

**Problem 1:** (15pts) Solve $-\frac{5}{3}x + 4 = \frac{7}{3}$.

**Problem 2:** (15pts) Solve $7x + 18 = 3x - 26$.

**Problem 3:** (15pts) Solve $4(x - 6) = 8x$.

**Problem 4:** (20pts) Solve $|7 - 3x| = 10$.

**Problem 5:** (10pts) Consider the lines given by $x + y = 10$ and $y = 3 - x$. Are these lines parallel ? Are they perpendicular ?

**Problem 6:** (15pts) The perimeter of a playing field is 1000 feet. The field is a rectangle and the length is 100 feet longer than the width. Find the length and the width of the field. Also, find the area of the field.

**Problem 7:** (10pts) Solve $3 - 2x > 5$ and give the answer in interval notation.

**Problem 8:** (15pts) Solve $|2x + 8| \geq 4$ and give the answer in interval notation.

**Problem 9:** (15pts) Solve $|2x + 8| < 4$ and give the answer in interval notation.

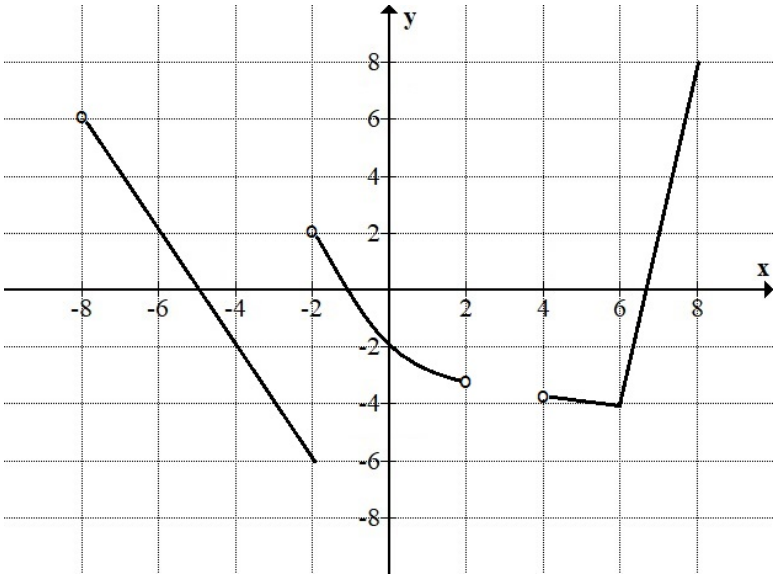
**Problem 10:** (16pts) Consider the graph $y = f(x)$ given below. Answer the following questions using interval notation (might need a union) where appropriate. Fill in the blanks:

**(a.)** the domain of $f(x) =$ _____.

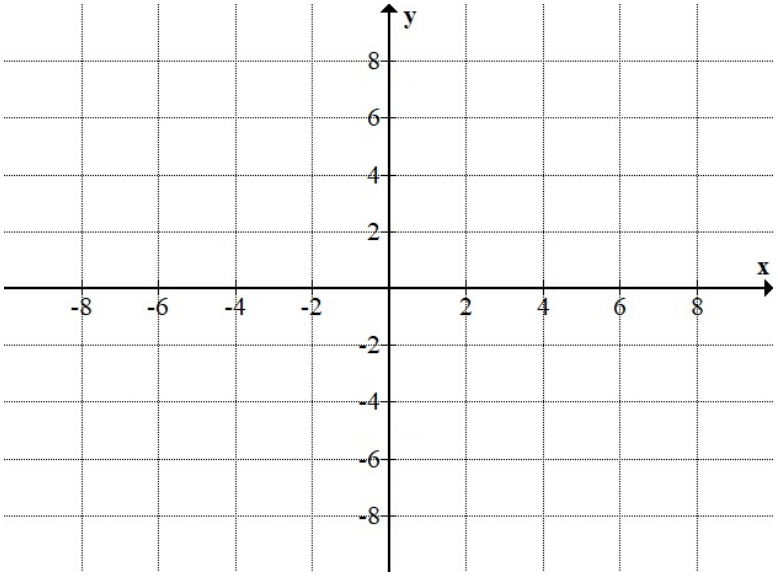
**(b.)** the range of $f(x) =$ _____.

**(c.)** $f(0) =$ _____.

**(d.)** $f(3) =$ _____.




**Problem 11:** (10pts) **Plot** the points $(-6, 4)$ and $(6, -2)$. Also, **find the equation** of the line which passes through the given points and **graph the line**.



**Problem 12:** (bonus, 10pts) Is the graph below the graph of a function ? Also, find as best you can with the given graph, all points for which $x^2 = 4$.