

In class work 5 has questions 1 through 8 with a total of 85 points. This assignment is due at the end of the class period (9:55 AM).

- 5 1. Find the *distance* between the points $(7, 2)$ and $(-1, -2)$.
- 5 2. Find the *midpoint* of the points $(2, 4)$ and $(5, 7)$.
- 5 3. A line L contains the points $(x = 5, y = 7)$ and $(x = 7, y = -1)$.
- 5 (a) Find an *equation* of the line L .
- 5 (b) Find the *x-intercept* of the line L .

- 5 4. Find an equation of the line that is parallel to the line $3y + 6x = 1$ and that contains the point $(x = 1, y = 1)$.
- 5 5. Find the *center* and *radius* of the circle $x^2 + 2x + y^2 - 6y = -6$.
- 5 6. The number of doghouses L a work crew can build in a day varies jointly with the number of people N in the crew and with the time T they work in a day. Given that $L = 12$ when $N = 5$ and $T = 6$, find L when $N = 20$ and $T = 10$.

7. Shown below is a graph of the equation $y = U(x)$. Some points on the graph are labeled. The domain of U is the closed interval $[-2, 2]$

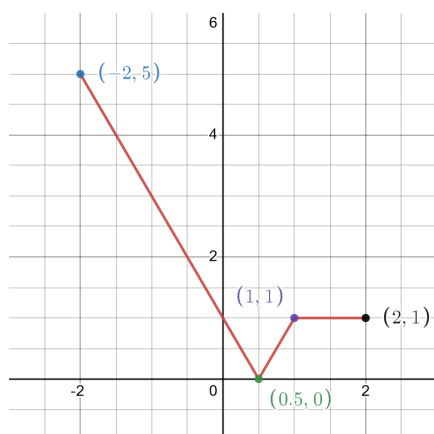


Figure 1: Graph of the equation $y = U(x)$.

- 5 (a) Find the numerical value of $U(-2)$.
- 5 (b) Find the *range* of U .
- 5 (c) Find the interval(s) on which U is *decreasing*.

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(d) Find the interval(s) on which U is *increasing*.

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(e) Find the interval(s) on which U is *constant*.

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(f) Sketch a graph of the equation $y - 1 = U(x - 1)$.

8. Define a function Q by $Q(x) = \begin{cases} x & x < 1 \\ 5 & 1 \leq x \end{cases}$.

5 (a) Find the numerical value of $Q(-2)$.

5 (b) Find the numerical value of $Q(2)$.

5 (c) Sketch a graph of Q .

(d) Find the *average rate of change* of Q on the interval $[-2, 2]$.