

Math 120 A - Spring 2005
Mid-Term Exam Number One Answers
April 21, 2005

Version 1 (in problem 1, River City is 25 miles East...)

1. 69.08746 miles
2. 12.5 m by 25 m
3. (a)

$$\text{amount} = \begin{cases} 14x & \text{if } 0 \leq x \leq 8, \\ 14 \cdot 8 + 18(x - 8) & \text{if } 8 < x \leq 11, \\ 14 \cdot 8 + 18 \cdot 3 + 30(x - 11) & \text{if } x > 11 \end{cases}$$

(b) 12.61538 hours

4. (a) $f(g(x)) = 15x + 20$
(b) $c = \frac{5}{4}, d = -\frac{17}{12}$
(c) $k(x) = 2.28942x + 0.2344415$.

Version 2 (in problem 1, River City is 30 miles West)

1. 47.9253 miles
2. 30 m by 60 m
- 3.

$$\text{amount} = \begin{cases} 12x & \text{if } 0 \leq x \leq 8, \\ 12 \cdot 8 + 20(x - 8) & \text{if } 8 < x \leq 12, \\ 12 \cdot 8 + 20 \cdot 4 + 35(x - 12) & \text{if } x > 12 \end{cases}$$

4. (a) $f(g(x)) = 6x + 7$
(b) $c = \frac{5}{8}, d = -\frac{15}{8}$.
(c) $k(x) = 2.15443469x - 0.7696231$