MA 138 Exam One Review Problems
Answers

1. The teacher divides the answer by three to give the original number. The instructions
   translate to $\dfrac{6x - 8}{2} + 4$, which simplifies to $3x$.

2.
   a. $0.45x$

   b. $0.25(x+4)$

3. 5, 16, and 18

4.
   a. Yes. Every element in the domain is matched with the same element in the ran,
      but when you consider any *single* element of the domain, that element is paired
      with exactly one element of the range.

   b. Yes.

   c. No. For example, what is $f(14)$?

5.
   a. $\{(2,3), (3,4), (4,3), (5,4)\}$ YES

   b. $\{(6,4), (4,3), (10,7), (6,3)\}$ NO: 6 is paired with 4 and with 3.

   c. $\{(3,3), (4,3), (6,3), (7,3)\}$ YES

6.
   a. $\{(1,w), (2, x), (4, z), (5, v), (3, x)\}$ YES

   b. $\{(2, z), (1, y), (5, w), (4, x)\}$ YES

   c. $\{(5,x), (1, v), (3, w), (4, z), (2, y), (3, z)\}$ NO, 3 is paired with w and with z

7.
   a. Yes, $t = 2$

   b. No. $t = 21/5$, which is not in the domain.

   c. No. $t = 12/5$, which is not in the domain.

   d. Yes, $t = 4$

8. $D(t) = 150 + 25(t - 3)$. $D(7) = \$250$.

9. 2.

10. Solve each of the following:
    a. $x = -4$

    b. $x = 5/2$

    c. $x < -12$

    d. $x > -5/2$

11.
    a. YES

    b. YES

    c. YES

12.
    a. No. $x = -3/4$, which is not in the domain.
    b. Yes, $x = 3$.
    c. Yes, $x = 0$

13.
    a. $55

    b. $C(n) = 45 + 0.5(n - 20)$

14. $m = 2, b = 4$.

15.
    a. $y = \dfrac{7}{3}x - \dfrac{7}{3}$

    b. $y = \dfrac{8}{3}x$

16. $f(x) = 1.60 + 1.20x$

17. $y = 4x + 12$

18.
    a. $m - 3$

    b. $m = 0$

19.
    a. 13.4

    b. 1.34

    c. 13.4

20.

    a. Can't be. Slope is negative, but slope of the line in the picture is positive. Also, the y-intercept is positive, but in the picture, it is negative.

    b. Could be. Slope looks reasonable, and the y-intercept looks accurate.

    c. Can't be, the slope is too large. You might not be able to get an accurate slope from the picture, but it is certainly less than 1.

21. 0.45 $0.\overline{45}$ $0.4\overline{5}$

22. Examples: 0.0501, 0.0505, and 0.0509.