MTH 111 Chapter 6 Graded Homework
Answer Key

6.1 #36

36. $\frac{x}{5}+4=9$

$$\frac{x}{5}=5$$

$$x=25$$

6.2 #25

25. $-4x+2=8x-7$

$$2=12x-7$$
$$9=12x$$
$$x=\frac{9}{12}=\frac{3}{4}$$

6.3 #36

36. $5y-3(y-2)=6(y+1)$

$$5y-3y+6=6y+6$$
$$2y=6y$$
$$y=0$$

6.3 #42

42. $2(7y-6)-11(y+1)=38-7(9y+4)$

$$14y-12-11y-11$$
$$=38-63y-28$$
$$3y-23=10-63y$$
$$66y=33$$
$$y=\frac{1}{2}$$

6.4 #14

14. $\frac{1}{2}x-3=\frac{x}{5}$

$$10\left(\frac{1}{2}x-3\right)=\frac{10x}{5}$$
$$5x-30=2x$$
$$3x=30$$
$$x=10$$

6.4 #20

20. $\frac{1}{2}(x+2)+\frac{3}{8}(28-x)=11$

$$\frac{8}{2}(x+2)+3(28-x)=88$$
$$4x+8+84-3x=88$$
$$x+92=88$$
$$x=-4$$

6.4 #26

26. $\frac{x}{3}+\frac{2x+4}{4}=\frac{x-1}{6}-\frac{3-2x}{2}$

$$\frac{12x}{3}+\frac{12(2x+4)}{4}=$$
$$\frac{12(x-1)}{6}-\frac{12(3-2x)}{2}$$

$$4x+3(2x+4)=$$
$$2(x-1)-6(3-2x)$$

$$4x+6x+12=$$
$$2x-2-18+12x$$

$$10x+12=14x-20$$
$$32=4x$$
$$x=8$$

6.4 #38

38. $\frac{3}{x}-3=\frac{5}{2x}-2$

$$2x\left(\frac{3}{x}\right)-2x(3)=$$
$$2x\left(\frac{5}{2x}\right)-2x(2)$$

$$6-6x=5-4x$$
$$1=2x$$
$$x=\frac{1}{2}$$

6.5 #10

10. The difference between four and a number

$$4-x$$

6.5 #14

14. If seven is added to a number, the sum is 32.

$$7+x=32$$

6.5 #24

24. If twelve is added to the product of a number and twelve, the sum is 72.

$$12+12x=72$$

6.6 #8

8. The length of a rectangle is 4 cm less than twice its width. Its perimeter is 40 cm. Find its length and width.

$$2L+2W=P$$
$$2(2x-4)+2x=40$$
$$4x-8+2x=40$$
$$6x=48$$
$$W=x=6$$
$$L=12-4=8$$

6.6 #14

14. The total cost of three automobile batteries is $340. The most expensive battery is three times the cost of the least expensive. The third is $15 more than the least expensive. Find the cost of each battery.

6.6 #18

6.6 #22

22. Mix a solution that is 50% acid with a solution that is 100% water to make 4 L of a solution that is 10% acid. How much of each solution should you use?

$(3x) + (x) + (x + 15) = 340$ $5x + 15 = 340$ $5x = 325$ $x = 65$ $3x = 195$ $x + 15 = 80$	18. Chuck receives loans totaling $12,000 from two banks. One bank charges 7.5% annual interest, and the second bank charges 6% annual interest. He paid $840 in total interest in one year. How much was loaned at each bank? $0.075x + 0.06(12{,}000 - x) = 840$ $0.075x + 720 - 0.06x = 840$ $0.015x = 120$ $x = 8{,}000$ $12{,}000 - x = 4000$	$0.5(x) + 0(4 - x) = 0.1(4)$ $0.5x = 0.4$ $x = \frac{4}{5} = 0.8L$
6.7 #22 22. $R = \frac{\rho L}{A}$ for L $\frac{RA}{\rho} = L$	6.7 #36 36. $A = \left(\frac{a+b}{2}\right) h$ for b $\frac{2A}{h} - a = b$	6.8 #4 4. $I = \frac{V}{R}$ $R = 44,\ I = 2.5$ $IR = V$ $V = 44(2.5) = 110$
6.8 #10 10. $A = P + Prt$ $r = 0.07,\ P = \$1500,\ A = \$2025$ $\frac{A - P}{Pr} = t$ $\frac{2025 - 1500}{1500 \cdot 0.07} = 5 = t$	6.8 #16 16. $A = \frac{1}{2} h (a + b)$ $A = 5502,\ h = 28.0,\ b = 183$ $\frac{2A}{h} - b = a$ $\frac{2(5502)}{28} - 183 = 210 = a$	