

Name: Caleb McWhorter — Solutions

MATH 101

Spring 2022

HW 5: Due 02/22

*“People waste their time pondering
whether a glass is half empty or half full.
Me, I just drink whatever’s in the glass.”
– Sophia Petrillo, The Golden Girls*

Problem 1. (10pt) Compute the following:

- (a) 45% of 160
- (b) 90% of 18
- (c) 170% of 850
- (d) 1% of 55

Solution.

(a) $160(0.45) = 72$

(b) $18(0.90) = 16.2$

(c) $850(1.70) = 1445$

(d) $55(0.01) = 0.55$

Problem 2. (10pt) Compute the following:

- (a) 690 increased by 35%
- (b) 1200 decreased by 55%
- (c) 44 increased by 126%
- (d) 107 decreased by 99%

Solution.

(a)

$$690(1 + 0.35) = 690(1.35) = 931.5$$

(b)

$$1200(1 - 0.55) = 1200(0.45) = 540$$

(c)

$$44(1 + 1.26) = 44(2.26) = 99.44$$

(d)

$$107(1 - 0.99) = 107(0.01) = 1.07$$

Problem 3. (10pt) Suppose you invest \$600 in an account which gains 1.3% interest per year, compounded quarterly. How much will be in the account after 30 years?

Solution.

$$F = P \left(1 + \frac{r}{n} \right)^{nt}$$

$$F = 600 \left(1 + \frac{0.013}{4} \right)^{4 \cdot 30}$$

$$F = 600(1.00325)^{120}$$

$$F = 600(1.47605)$$

$$F = \$885.63$$

Problem 4. (10pt) Convert the following:

- (a) \$64 to £ [1 £ = \$1.36]
- (b) 12.6 days to seconds
- (c) 15 feet per second to mph
- (d) \$4 per square foot to \$ per square inch

Solution.

(a)

$$\frac{\$64}{1} \times \frac{1 \text{ £}}{\$1.36} = 47.0588 \text{ £}$$

(b)

$$\frac{12.6 \text{ days}}{1} \times \frac{24 \text{ hours}}{1 \text{ day}} \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{60 \text{ s}}{1 \text{ min}} = 1088640 \text{ s}$$

(c)

$$\frac{15 \text{ ft}}{1 \text{ s}} \times \frac{1 \text{ mi}}{5280 \text{ ft}} \times \frac{60 \text{ s}}{1 \text{ hr}} = 0.170455 \text{ mph}$$

(d)

$$\frac{\$4}{1 \text{ ft}^2} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{1 \text{ ft}}{12 \text{ in}} = \$0.027778/\text{in}^2$$