

## SAMPLE CHAPTER TEST SOLUTIONS

### *Part A: Multiple Choice*

---

1. b) \$1200.00

$$\text{Area: } 5 \text{ m} \times 8 \text{ m} = 40 \text{ m}^2$$

$$40 \text{ m}^2 \times \$30.00/\text{m}^2 = \$1200.00$$

2. a) 35 yd<sup>2</sup>

$$15 \text{ ft} \times \frac{1 \text{ yd}}{3 \text{ ft}} = 5 \text{ yd}$$

$$21 \text{ ft} \times \frac{1 \text{ yd}}{3 \text{ ft}} = 7 \text{ yd}$$

$$\text{Area: } 5 \text{ yd} \times 7 \text{ yd} = 35 \text{ yd}^2$$

3. c) 80.688 yd<sup>2</sup>

$$7.5 \text{ m} \times \frac{1 \text{ yd}}{0.9144 \text{ m}} = 8.20 \text{ yd}$$

$$9 \text{ m} \times \frac{1 \text{ yd}}{0.9144 \text{ m}} = 9.84 \text{ yd}$$

$$\text{Area: } 8.20 \text{ yd} \times 9.84 \text{ yd} = 80.688 \text{ yd}^2$$

4. a) 18.9270 L

$$\frac{3.7854 \text{ L}}{1 \text{ gal}} = \frac{x \text{ L}}{5 \text{ gal}}$$

$$(5 \text{ gal}) \frac{3.7854 \text{ L}}{1 \text{ gal}} = 18.9270 \text{ L}$$

5. d) 89.58 in<sup>2</sup>

$$SA = 2\pi rh$$

$$SA = 2\pi(3.125 \div 2)(9.125)$$

$$SA = 89.58 \text{ m}^3$$

### *Part B: Short Answer*

---

6. Convert the dimensions to feet using the scale 0.25 in equals 18 ft.

Entire property (large rectangle) is 72 ft × 108 ft.

Building (small square) is 54 ft × 54 ft.

Shaded area = large rectangle area – small rectangle area

$$\text{Shaded area} = (72 \text{ ft} \times 108 \text{ ft}) - (54 \text{ ft} \times 54 \text{ ft})$$

$$\text{Shaded area} = 7776 \text{ ft}^2 - 2916 \text{ ft}^2 = 4860 \text{ ft}^2$$

Bags of salt: 4860 ft<sup>2</sup>

$$1500 \text{ ft}^2 = 3.24$$

She needs to buy 4 bags of salt.

7. Plan 1:

$$3 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} = 9 \text{ ft}$$

$$4 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} = 12 \text{ ft}$$

$$\text{Area: } 9 \text{ ft} \times 12 \text{ ft} = 108 \text{ ft}^2$$

$$\text{Cost labour: } 108 \text{ ft}^2 \times \$8.50/\text{ft}^2 = \$918.00$$

$$\text{Cost bricks: } \$5.00/\text{ft}^2 \times 108 \text{ ft}^2 = \$540.00$$

$$\text{Total cost: } \$540.00 + \$918.00 = \$1458.00$$

Plan 2:

$$2.5 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} = 7.5 \text{ ft}$$

$$5 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} = 15 \text{ ft}$$

$$\text{Area: } 15 \text{ ft} \times 7.5 \text{ ft} = 112.5 \text{ ft}^2$$

$$\text{Cost labour: } 112.5 \text{ ft}^2 \times \$8.50/\text{ft}^2 = \$956.25$$

$$\text{Cost bricks: } \$5.00/\text{ft}^2 \times 112.5 \text{ ft}^2 = \$562.5$$

$$\text{Total cost: } \$540.00 + \$918.00 = \$1518.75$$

The client should choose Plan 1.

8. Convert the diameter of the coffee table from inches to feet.

$$28 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} = 2.33 \text{ ft}$$

Find the circumference of the coffee table.

$$C = \pi d$$

$$C = \pi(2.33)$$

$$C = 7.33 \text{ ft}$$

Convert the diameter of the end table from inches to feet.

$$16 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} = 1.33 \text{ ft}$$

Find the circumference of the end table.

$$C = \pi d$$

$$C = \pi(1.33)$$

$$C = 4.19 \text{ ft}$$

Add the circumferences to find the total length of laminate needed.

$$7.33 + 4.19 + 4.19 = 15.71$$

One roll of laminate is 8 ft long, so the cabinet maker will buy two rolls.

$$2 \times \$8.89 = \$17.78$$

The laminate will cost \$17.78.

9.  $SA = \pi rs$

$$SA = \pi \left( 3 \text{ ft} \times \frac{1 \text{ yd}}{3 \text{ ft}} \right) \left( 5 \text{ ft} \times \frac{1 \text{ yd}}{3 \text{ ft}} \right)$$

$$SA = 5.24 \text{ yd}^2$$

The planner would need to buy whole yards.

$$6 \text{ yd}^2 \times \$23.00 \text{ per yd}^2 = \$138.00$$

10. Surface area of a cylinder (base and side, the top is open):

$$SA = \pi dh + \pi r^2$$

$$SA = \pi(1.5)(2.5) + \pi(0.75)^2$$

$$SA = 11.8 \text{ ft}^2 + 1.8 \text{ ft}^2$$

$$SA = 13.6 \text{ ft}^2$$

Amount of paint needed for 2 coats on one pot:

$$2 \times 13.6 \text{ ft}^2 = 27.2 \text{ ft}^2$$

$$2 \text{ pots} = 54.4 \text{ ft}^2$$

Yes, one can of paint is enough for the two pots.

11. Volume of bookend:

$$V_1 = lwh$$

$$V_1 = \left(2 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right) \left(8 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right) \left(4 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right)$$

$$V_1 = 0.037 \text{ ft}^3$$

$$V_2 = \left(2 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right) \left(4 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right) \left(4 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right)$$

$$V_2 = 0.019 \text{ ft}^3$$

$$V_3 = \left(2 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right) \left(4 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right) \left(6 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}\right)$$

$$V_3 = 0.028 \text{ ft}^3$$

$$V_{\text{total}} = V_1 + V_2 + V_3$$

$$V_{\text{total}} = 0.037 \text{ ft}^3 + 0.019 \text{ ft}^3 + 0.028 \text{ ft}^3$$

$$V_{\text{total}} = 0.084 \text{ ft}^3$$

Cost:

$$(25 \times 2)(0.084 \text{ ft}^3)(\$15.25/\text{ft}^3) = \$64.05$$

### *Part C: Extended Answer*

---

12. a) Area of patio =  $\pi r^2$

$$\text{Area of patio} = \pi (3.5)^2$$

$$\text{Area of patio} = 38.48 \text{ yd}^2$$

b) Area of walkway =  $lw$

$$\text{Area of walkway} = 17 \text{ yd} \times 2 \text{ yd}$$

$$\text{Area of walkway} = 34 \text{ yd}^2$$

c)  $38.48 \text{ yd}^2 + 34 \text{ yd}^2 = 72.48 \text{ yd}^2$

Cost of the paved area:

$$\$25.00/\text{yd}^2 \times 72.48 \text{ yd}^2 = \$1812.00$$

d) Find the area of the backyard.

$$A = lw$$

$$A = 25 \text{ yd} \times 9 \text{ yd}$$

$$A = 225 \text{ yd}^2$$

Subtract the area of the pavement.

$$225 \text{ yd}^2 - 72.48 \text{ yd}^2 = 155.52 \text{ yd}^2$$

Cost of the lawn area:

$$\$8.00/\text{yd}^2 \times 155.52 \text{ yd}^2 = \$1220.16$$

e) Total cost:

$$\$1812.00 + \$1220.16 = \$3032.16.$$