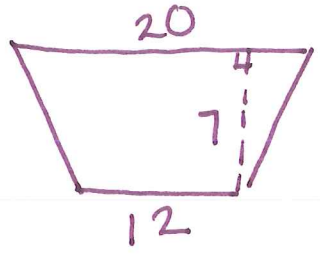
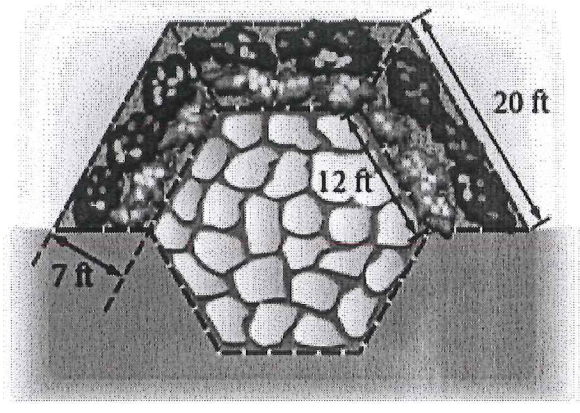


Name Key

Advanced Area Application Notes

1. Alana, a landscape architect is designing three trapezoidal flowerbeds to wrap around the three sides of a hexagonal patio. What is the area of the entire flowerbed? Alana's fee is \$100 plus \$5 per square foot. What will the flowerbed and labor cost (without tax and with a 6% sales tax)?



area of one trapezoid

$$A = \frac{1}{2} h (b_1 + b_2)$$
$$A = \frac{1}{2} 7 (20 + 12)$$
$$A = 112 \text{ ft}^2$$

Just one!

Area of the entire flower bed

$$A_T = 3 \text{ trapezoids}$$
$$A_T = 3 (112)$$
$$A_T = 336 \text{ ft}^2$$

Flower bed plus Labor cost

@ \$100 + 5 / sq. foot

$$\text{Cost} = 100 + 5 (336)$$
$$\text{Cost} = \$1780 \text{ w/out tax}$$

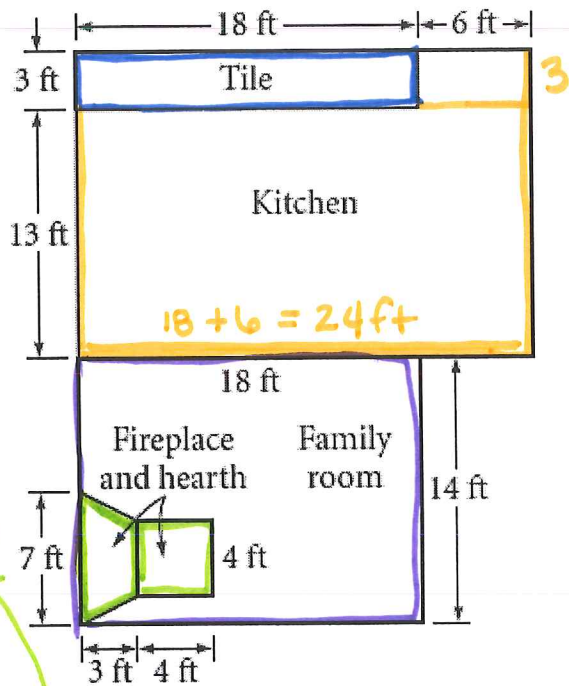
w/ 6% sales tax

\* Find 6% of 1780

$$1780 \times .06 = \$106.80$$

$$\text{tax} = 106.80$$
$$\text{total w/ tax: } 1780.00 + 106.80$$
$$\text{total} = \$1886.80$$

4. Shelbie will be tiling the area labeled tile, the fireplace and hearth. She will be putting new carpet down in the family room and hardwood floors in the kitchen. She only has \$5,000 for her renovation budget. (a) Find how many square feet of each material is needed for this home renovation. (b) If the wood flooring cost \$10 per square foot, the tile costs \$3 per square foot and carpet costs \$3.30 per square foot, does Shelbie have enough money for her home renovation? Without tax and with a 6% sales tax?



a.) tile:  $3 \times 18 = 54 \text{ ft}^2$

Fire + hearth =

$\frac{1}{2} 3(7+4) + 4 \cdot 4 = 32.5 \text{ ft}^2$

$A_T$  to be tiled:  $54 + 32.5$   
 $A_T = 86.5 \text{ ft}^2$  tile

Carpet: Family room - hearth + Fire  
 $18 \times 14 - 32.5$   
 Family room carpet =  $219.5 \text{ ft}^2$

Hard wood floors: Kitchen

$A_K = 13 \times 24 + 3 \times 6 = 330 \text{ ft}^2$   
 $A_K = 330 \text{ ft}^2$

b.) Cost of tile:  $\$3/\text{ft}^2$   $86.5 \times 3 = \$259.50$  for tile

Cost of wood floor @  $\$10/\text{ft}^2$   
 $330 \times 10 = \$3,300$  for wood floors

Cost of carpet: @  $\$3.30/\text{ft}^2$   
 $219.5 \times 3.30 = \$724.35$  for carpet

Total cost  $259.5 + 3,300 + 724.35 = \$4,283.85$   
 tax:  $4,283.85 \times 0.06 = \$257.03$   
 TOTAL  $\rightarrow \$4,540.88$

Before tax.  
 Yes, she has enough