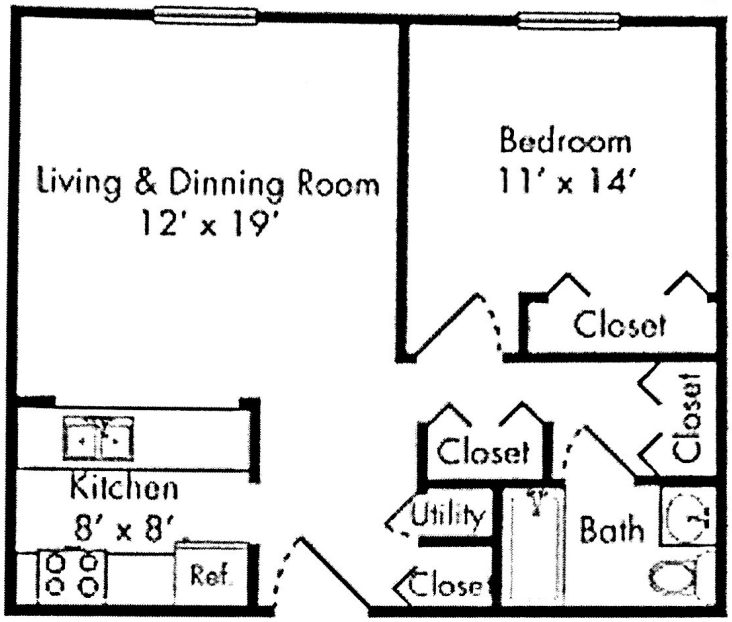
SOLUTIONS

2D Measurement Performance Task Prep | MEL4E

You will do similar problems (slightly more open ended) on tomorrow's first performance task.

1) Consider this floor layout in an apartment. All measurements are in feet.



In addition, here are some additional dimensions:

- The bedroom closet is 2' by 7'
- All other closets are 2' by 3'
- The bathroom is 6' by 8'

a) New hardwood is going into the living room, bedroom, bedroom closet, and the two closets in the bedroom hallway. The hardwood costs $7.50 per square foot (including installation). Find the cost of this job:

x 7.50

Room	Area	Cost of Hardwood
Living and Dining Room	$12 \times 19 = 228\ ft^2$	$1,710
Bedroom	$11 \times 14 = 154\ ft^2$	$1,155
Bedroom Closet	$2 \times 7 = 14\ ft^2$	$105
Hallway Closet 1	$2 \times 3 = 6\ ft^2$	$45
Hallway Closet 2	$2 \times 3 = 6\ ft^2$	$45
	Total Cost	$3,060

b) New tile is going into the kitchen, bathroom, utility closet, and the closet by the main entrance. The tile costs $7.75 per square foot (including installation). Find the cost of this job:

×7.75 Tile

Room	Area	Cost of ~~Hardwood~~
Kitchen	$8 \times 8 = 64\ ft^2$	$496
Bathroom	$6 \times 8 = 48\ ft^2$	$372
Utility Closet	$2 \times 3 = 6\ ft^2$	$46.50
Entrance Closet	$2 \times 3 = 6\ ft^2$	$46.50
	Total Cost	$961

c) Trim is being put along the baseboards in the living and dining room, and the bedroom. This costs $1.25 per foot. Find the cost of this job.

×1.25 Trim

Room	Perimeter	Cost of ~~crown molding~~
Living and Dining Room	$12+12+19+19 = 62\ ft$	$77.50
Bedroom	$11+11+14+14 = 50\ ft$	$62.50
	Total Cost	$140.

d) What is the total cost of all of these jobs? Include 13% for sales tax.

$3060 + 961 + 140$

$= \$4,161$ before tax

$\$4,161 \times 1.13 = \$4,701.93$ in total

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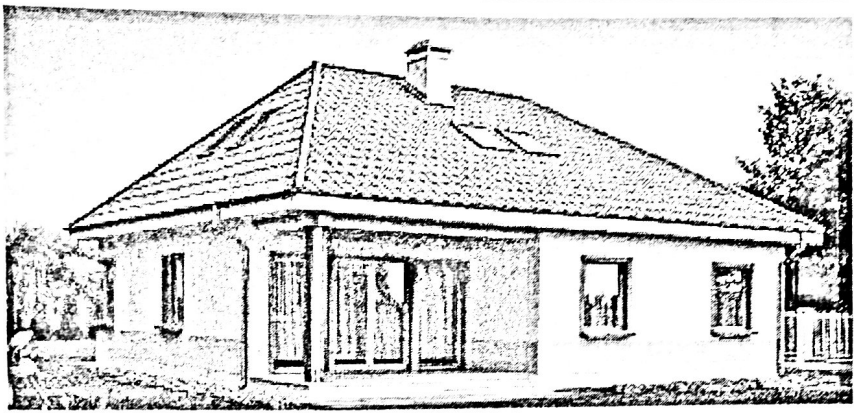
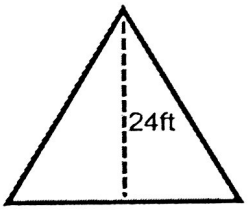
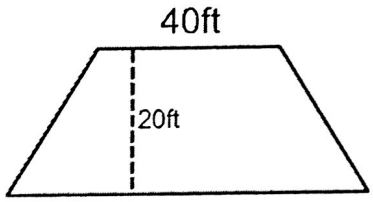
2) You are pricing out a new roof for your home. You have a "hipped roof" diagrammed below. Find the total area of your roof using the table below.

Visual of Roof:







Area of Triangle Portion (calculations)	Area of Trapezoid Portion (calculations)
$A = b \times h \div 2$ $= 30 \times 24 \div 2$ $= 360\ ft^2$	$A = (top + bottom) \times h \div 2$ $= (40+60) \times 20 \div 2$ $= 100 \times 20 \div 2$ $= 1000\ ft^2$
Area = $360\ ft^2$	Area = $1000\ ft^2$
Total Area (2 triangles + 2 trapezoids) = $360 + 360 + 1000 + 1000 = 2,720\ ft^2$	

b) The cost for metal roofing is $9.00 per square foot (installed). How much is this new roof going to cost?

$2,720 \times 9 = \$24,480$ for a new steel roof.

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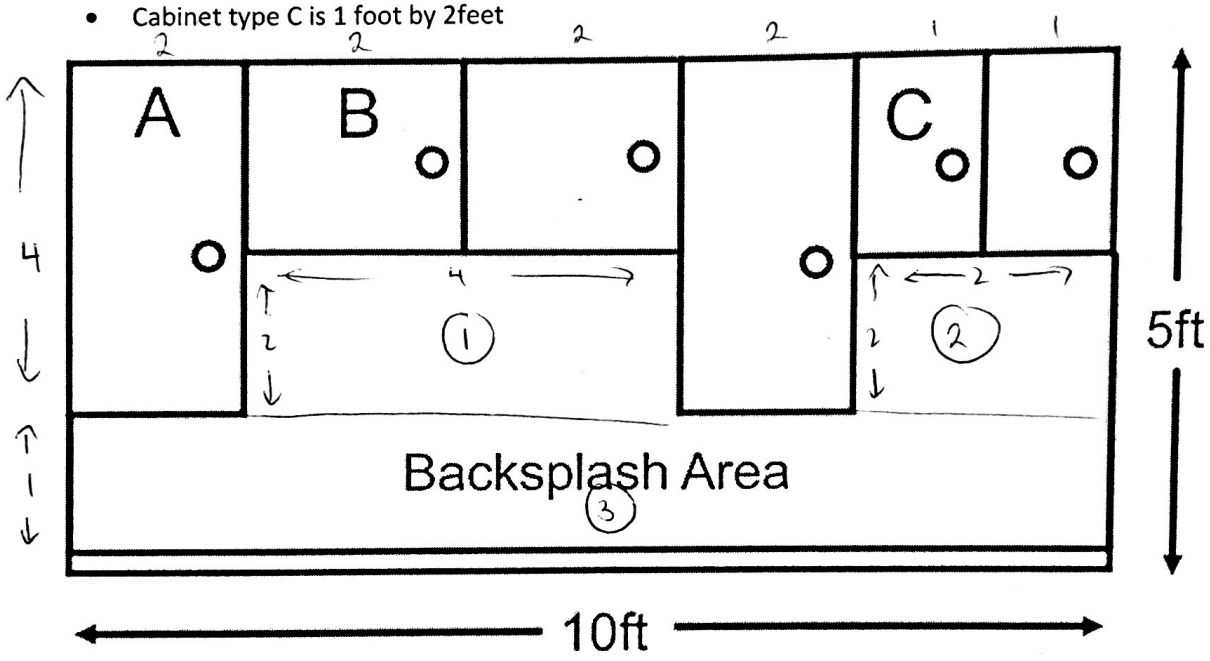
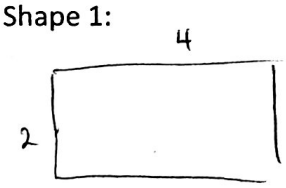
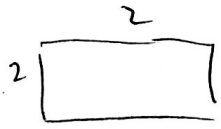
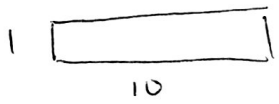
3) Mr. Smith is putting up a backsplash in his kitchen. The wall where the backsplash is going looks something like below. The wall itself is 5 feet by 10 feet. In addition, the 3 cabinet sizes are listed below:

- Cabinet type A is 2 feet by 4 feet
- Cabinet type B is 2 feet by 2 feet
- Cabinet type C is 1 foot by 2feet



Determine the area of the backsplash wall:

Shape 1:	Shape 2:	Shape 3:
 $A = 2 \times 4$	 $A = 2 \times 2$	 $A = 1 \times 10$
Area = $8\ ft^2$	Area = $4\ ft^2$	Area = $10\ ft^2$
Total Area = $8 + 4 + 10 = 22\ ft^2$		