Name_____ Date_____

Answers

1. Volume: 331.6625 cm^3; label area: 204.1 cm^2; design cost: $306.15

2. a) The jars have similar volumes. To the nearest cubic centimetre, the volume of the first jar is 593 cm^3 and the volume of the second jar is 580 cm^3.

   b) The first jar; to the nearest cent, the label design cost for the first jar is $256.22 and the label design cost for the second jar is $296.26.

3. In the main program, I would set the **pricePerSquareCM** variable to 1.25 instead of 1.5.

4. Sample answer:

   The first part of the subprogram **collectInfo** would change to

   ```
   ask for the container radius
   ```

   In the subprogram **calculateVolume**, I would delete the line that determines the radius.

   I would change the subprogram **calculateLabelArea**, like this:

   ```
   subprogram calculateLabelArea
       labelArea = 2 * pi * radius * labelHeight
   display labelArea
   ```

Mathology 8 PEI, *3-D Objects*
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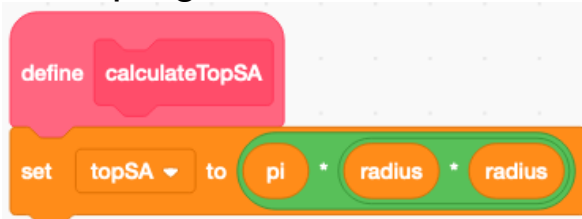This page may have been modified from its original.

Answers (cont'd)

5. Sample answer:

a) I would create a new variable for the surface area of the top, called **topSA**.

In the pseudocode, I would add a new subprogram called **calculateTopSA**:

```
subprogram calculateTopSA
   topSA =  pi * radius * radius
   display topSA
```

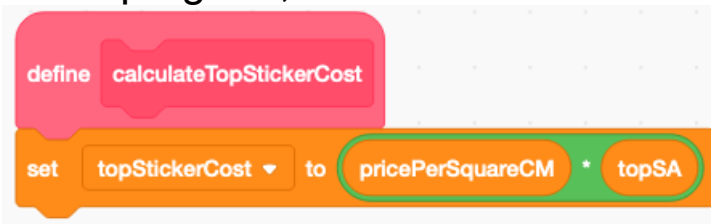In the program, it would look like this:

b) I would create a new variable for the cost to design the sticker, called **topStickerCost**.

In the pseudocode, I would add a new subprogram called **calculateTopStickerCost**:

```
subprogram calculateTopStickerCost
   topStickerCost = pricePerSquareCM * topSA
   display topStickerCost
```

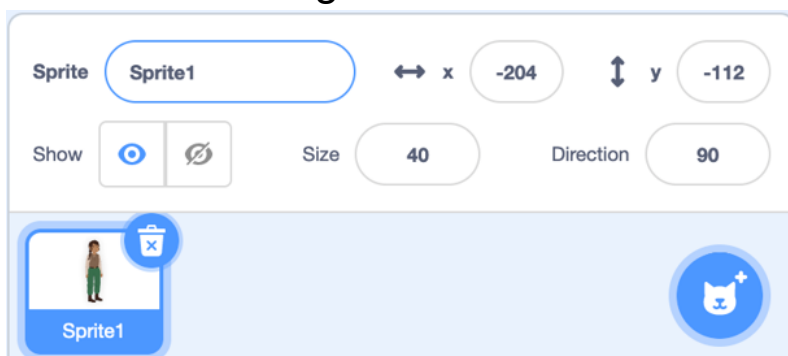In the program, it would look like this:

Answers (cont'd)

Extensions:
Sample answers:

- Below the stage, I selected **Show** to have the sprite appear, made the size 40, and dragged the sprite to the lower left corner of the stage.

  Then, at the end of the main program, I added a block that made the sprite announce what the design cost was.

- I added a block to the end of the label design cost subprogram. The new block multiplies the **designCost** variable by 100, rounds it, then divides by 100.
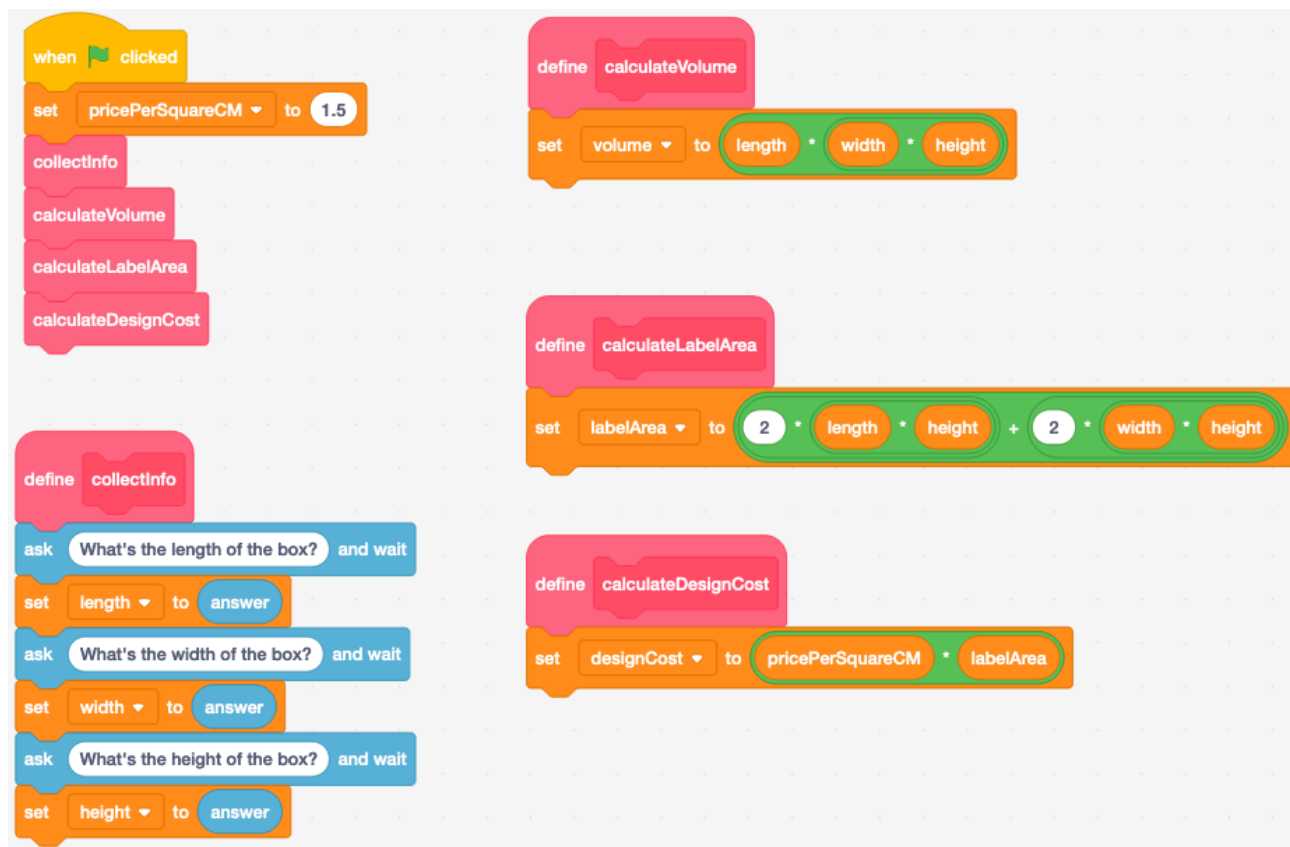 The block looks like this:

- Samples using grocery items will vary.

Name_____ Date_____

Answers (cont'd)

- Sample program based on modifying Yindi's program. For this sample, an image was added to help clients visualize the box and which face will be considered the base.

```
when [flag] clicked
set pricePerSquareCM ▾ to 1.5
collectInfo
calculateVolume
calculateLabelArea
calculateDesignCost
```

```
define collectInfo
ask  What's the length of the box?  and wait
set  length ▾ to  answer
ask  What's the width of the box?  and wait
set  width ▾ to  answer
ask  What's the height of the box?  and wait
set  height ▾ to  answer
```

```
define calculateVolume
set volume ▾ to  length * width * height
```

```
define calculateLabelArea
set labelArea ▾ to  2 * length * height + 2 * width * height
```

```
define calculateDesignCost
set designCost ▾ to  pricePerSquareCM * labelArea
```

Output for box with length 6 cm, width 4 cm, and height 8.5 cm.

Labels for Boxes
Click the Green Flag to begin.
Enter the length, width, and height of the prism in centimetres when asked.

length 6   width 4   height 8.5

Calculated Values:
labelArea 170
volume 204   designCost 255

Units:
Volume in cubic centimetres
Label area in square centimetres
Label design cost in Canadian dollars

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