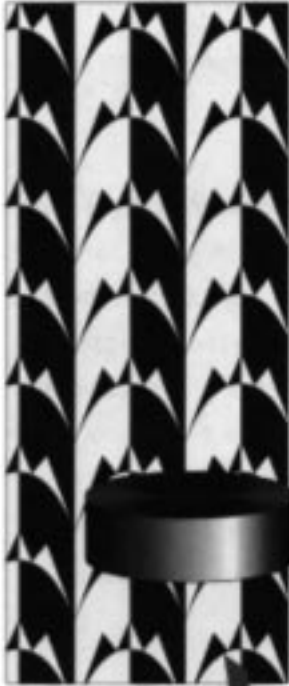


Wrap It Up!

Surface Area of Rectangular Prisms



Gary works at a local department store in the gift wrap department. He came to work one day and found six packages and six different-sized sheets of wrapping paper. His boss gave him a list of the dimensions of each package and the dimensions of each sheet of wrapping paper and told him to decide which package could be wrapped with which sheet of paper. Can you help Gary match the paper and the packages? (Hint: Use the **M+** key to help you find the surface area of each package.)

Dimensions of Packages
Package 1: 15 in. by 12 in. by 8 in.
Package 2: 18 in. by 12 in. by 10 in.
Package 3: 20 in. by 10 in. by 5 in.
Package 4: 15 in. by 15 in. by 15 in.
Package 5: 10 in. by 9 in. by 8 in.
Package 6: 25 in. by 14 in. by 5 in.

Dimensions of Paper
Sheet 1: 24 in. by 30 in.
Sheet 2: 23 in. by 36 in.
Sheet 3: 30 in. by 48 in.
Sheet 4: 20 in. by 26 in.
Sheet 5: 30 in. by 36 in.
Sheet 6: 23 in. by 48 in.

Thinking Cap



Gary's boss asked him to determine how much paper would be left over after wrapping each package. Can he tell how much he will have left before he wraps the packages? Explain your answer.

Wrap It Up!

Surface Area of Rectangular Prisms

Topic: Surface Area of Rectangular Prisms

Objective: To use the calculator to solve problems involving the surface area of rectangular prisms.

NCTM Standards: Problem solving, Reasoning, Measurement

Using this Activity:

Students use the calculator in this activity to find the area of a rectangular sheet of wrapping paper and the surface area of packages that are shaped like rectangular prisms.

- The **M+** key can be used to find the surface area of each package.

Example To find the surface area of Package 1, first press **MC** to clear the memory Enter 2 **X** 15 **X** 12 **M+** to calculate the area of two faces with dimensions 15 in. by 12 in. Enter the result into memory. Then enter 2 **X** 12 **X** 8 **M+** to calculate the area of the two faces with dimensions 12 in. by 8 in. (This area is automatically added to the area previously calculated.) Then enter 2 **X** 15 **X** 8 **M+** to calculate the area of the two faces with dimensions 15 in. by 8 in. (The **M+** key adds this area to the areas previously calculated.) Then press **MR** to find the surface area of the entire package, which is 792 in².

Assessment Students should be encouraged to check the surface area of each package by using an alternate method. For example, the surface area calculated in the example above can also be found by entering 2 **X** 15 **X** 12 **+** 2 **X** 12 **X** 8 **+** 2 **X** 15 **X** 8 **=**.

Answers

Surface area of packages: Package 1: See example above.; Package 2: Enter 2 **X** 18 **X** 12 **M+** 2 **X** 12 **X** 10 **M+** 2 **X** 18 **X** 10 **M+** **MR**. The result is 1032 in². Package 3: Enter 2 **X** 20 **X** 10 **M+** 2 **X** 10 **X** 5 **M+** 2 **X** 20 **X** 5 **M+** **MR**. The result is 700 in². Package 4: Since this package is a cube and all of the faces are congruent, enter 6 **X** 15 **X** 15 **=**. The result is 1350 in². Package 5: Enter 2 **X** 10 **X** 9 **M+** 2 **X** 9 **X** 8 **M+** 2 **X** 10 **X** 8 **M+** **MR**. The result is 484 in². Package 6: Enter 2 **X** 25 **X** 14 **M+** 2 **X** 14 **X** 5 **M+** 2 **X** 25 **X** 5 **M+** **MR**. The result is 1090 in². Area of Paper: Sheet 1: Enter 24 **X** 30 **=**. The area is 720 in². Sheet 2: Enter 23 **X** 36 **=**. The area is 828 in². Sheet 3: Enter 30 **X** 48 **=**. The area is 1440 in². Sheet 4: Enter 20 **X** 26 **=**. The area is 520 in². Sheet 5: Enter 30 **X** 36 **=**. The area is 1080 in². Sheet 6: Enter 23 **X** 48 **=**. The area is 1104 in². Package 1 goes with Sheet 2. Package 2 goes with Sheet 5. Package 3 goes with Sheet 1. Package 4 goes with Sheet 3. Package 5 goes with Sheet 4. Package 6 goes with Sheet 6.

Thinking Cap

No, he will need slightly more paper than the surface area of the package to wrap it.