Name: _____ Date: _____

Reading a Floor Plan to Price Carpet

Circle group

A family wants new carpet for a bedroom. The store asks how big the room is. Nobody needs a long tape measure. The house plans are on the table. A floor plan is a scale drawing. It is a small picture where every length is shrunk by the same amount.

The scale is printed in a corner of the plan. Say it tells you that 1 inch on the paper means 4 feet in the real house. On the plan, the bedroom is 3 inches by 2.5 inches. Multiply each by 4. The room is 12 feet by 10 feet. Area is length times width. The floor is 120 square feet.

Here is a mistake to avoid. The area on paper is 7.5 square inches. You cannot just multiply that by 4. The length was shrunk and so was the width. So the area was shrunk twice. Each square inch on the plan means 4 feet times 4 feet. That is 16 square feet. And 7.5 times 16 is the same 120 square feet.

Carpet costs $3 per square foot. So the cost is 120 times $3. That is $360. A smart shopper also asks about extra carpet. Pieces must be cut to fit corners and doorways. Scale drawings help people plan rooms, maps and machines without working at full size.

Questions

1. What is a scale drawing?

_____

_____

2. What does 1 inch on the plan mean in the example?

_____

_____

3. What are the real measurements of the bedroom?

_____

_____

4. How much would the carpet cost at $3 per square foot?

_____

_____

5. Why can you not multiply the paper area by 4?

_____

_____

6. Why might a shopper ask about extra carpet?

_____

_____

Words to know

scale: the rule that tells how drawn lengths match real lengths
floor plan: a drawing of a room or house as seen from above
area: the amount of flat space inside a shape
doorways: the openings where doors are placed

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Reading a Floor Plan to Price Carpet

Triangle group

A family wants new carpet for a bedroom, and the store asks for the size of the room. Nobody has to haul out a long tape measure, because the plans for the house are already lying on the table. A floor plan is a scale drawing, which is a small picture in which every length has been shrunk by exactly the same amount.

The scale is printed in a corner of the plan. Suppose it says that 1 inch on the paper stands for 4 feet in the real house. On the plan, the bedroom measures 3 inches by 2.5 inches, so to find the real lengths you multiply each one by 4. The room turns out to be 12 feet by 10 feet. Since area is length times width, the floor covers 120 square feet.

Here is a mistake to avoid. The area on paper is 7.5 square inches, but you cannot simply multiply that number by 4. Both the length and the width were shrunk, which means the area was shrunk twice. Every square inch on the plan stands for 4 feet times 4 feet, which is 16 square feet, and 7.5 times 16 gives the same 120 square feet.

If the carpet costs $3 per square foot, the total cost is 120 times $3, or $360. A sensible shopper also asks about extra material, because the pieces must be trimmed to fit around corners and doorways. Scale drawings let people plan rooms, maps and machines without ever having to work at full size.

Questions

1. What is a scale drawing?

_____

_____

2. In the example, what does 1 inch on the plan stand for?

_____

_____

3. What are the real measurements of the bedroom?

_____

_____

4. How much would the carpet cost at $3 per square foot?

_____

_____

5. Why can you not multiply the area on paper by 4 to find the real area?

_____

_____

6. Why might a shopper ask about extra carpet?

_____

_____

Words to know

scale: the rule that tells how drawn lengths match real lengths
floor plan: a drawing of a room or house as seen from above
measures: has a certain size when checked with a ruler
area: the amount of flat space inside a shape
doorways: the openings where doors are placed

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Reading a Floor Plan to Price Carpet

Square group

A family wishes to install new carpet in a bedroom, and the flooring store requests the dimensions of the room. Fortunately, nobody has to wrestle with a long tape measure, because the architectural plans for the house are already lying on the table. A floor plan is a scale drawing, a reduced picture in which every length has been shrunk by exactly the same proportion.

The scale is printed in one corner of the plan. Suppose it states that 1 inch on the paper represents 4 feet in the actual house. On the plan, the bedroom measures 3 inches by 2.5 inches. To determine the real lengths, you multiply each measurement by 4, which shows that the room is 12 feet by 10 feet. Area equals length multiplied by width, so the floor covers 120 square feet.

There is one error that is worth avoiding. The area on the paper is 7.5 square inches, but you cannot simply multiply that figure by 4. Both the length and the width were reduced, so the area was reduced twice over. Every square inch on the plan represents 4 feet by 4 feet, or 16 square feet, and 7.5 multiplied by 16 produces the same 120 square feet.

If the carpet is priced at $3 per square foot, the total is 120 multiplied by $3, or $360. A sensible shopper will also inquire about additional material, since pieces have to be trimmed to fit corners and doorways. Scale drawings allow people to plan rooms, maps and even machines without ever having to work at full size.

Questions

1. What is a scale drawing, according to the passage?

_____

_____

2. What does 1 inch on the plan represent in the example?

_____

_____

3. What are the real dimensions of the bedroom?

_____

_____

4. How much would the carpet cost if it is priced at $3 per square foot?

_____

_____

5. Why is it wrong to multiply the area on the paper by 4?

_____

_____

6. Why would a sensible shopper inquire about additional carpet?

_____

_____

Words to know

scale: the rule that tells how drawn lengths match real lengths
floor plan: a drawing of a room or house as seen from above
measures: has a certain size when checked with a ruler
area: the amount of flat space inside a shape
doorways: the openings where doors are placed

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Reading a Floor Plan to Price Carpet

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Reading a Floor Plan to Price Carpet

Easier · 201 words · Flesch-Kincaid grade 2.3

1. A small picture where every length is shrunk by the same amount.
2. 4 feet in the real house.
3. 12 feet by 10 feet.
4. $360.
5. Length and width were both shrunk, so the area was shrunk twice and must be multiplied by 16.
6. Pieces must be cut to fit corners and doorways, so some may be wasted.

Triangle: Reading a Floor Plan to Price Carpet

This passage · 236 words · Flesch-Kincaid grade 6.1

1. A small picture in which every length is shrunk by the same amount.
2. 4 feet in the real house.
3. 12 feet by 10 feet.
4. $360.
5. Both the length and the width were shrunk, so the area must be multiplied by 4 twice, which is 16.
6. Pieces must be cut to fit corners and doorways, so some material may be wasted.

Square: Reading a Floor Plan to Price Carpet

Harder · 243 words · Flesch-Kincaid grade 8.4

1. A reduced picture in which every length has been shrunk by the same proportion.
2. 4 feet in the actual house.
3. 12 feet by 10 feet.
4. $360.
5. Both the length and the width were reduced, so the area was reduced twice and must be multiplied by 16.
6. Pieces have to be trimmed to fit corners and doorways, so some material may be wasted.