Our goal is to find the shortest combined length of hyp 1 + hyp 2 as the speaker is moved along the 8' cabinet. We must explore (calculate the lengths) of every possible placement. See the table.

Here is one calculation:

\[ \text{hyp } 1^2 = 6^2 + 4.8^2 \]
\[ \text{hyp } 1 = \sqrt{59.04} \]
\[ \text{hyp } 2^2 = 36 + 2304 \]
\[ \text{hyp } 2 = \sqrt{2664} \]

So, if the speaker is placed 4.8" from the edge of the cabinet, it will use \( \sqrt{59.04} + \sqrt{2664} \approx 12.8062 \) feet of cable.

In the table, all possible placements are calculated showing that the above placement is shortest.

7-23) Yes, they are similar because \( \frac{6}{4} = \frac{1.5}{1} \) or \( \frac{6(3.2)}{4(4.8)} = 1.92 \approx 1.92 \)

The two have one proportional.

The angle between is \( \frac{\pi}{2} \), hence SWS.

7-28) a) The 90° angle is reflected, so \( m \angle x'y'z' = 90° \) also, then \( m \angle x'y'z' = 180° \), therefore it's a straight line.

b) They must be \( \approx \) because rigid transformations (such as a reflection) do not alter shape or size of an object.

c) \( \frac{xy}{x'y'} = \frac{xz}{x'z'} = \frac{yz}{y'z'} \), \( \angle x'y'z = \angle y'z'x \), \( \angle x'y'z = \angle y'z'x \)

6 pairs; 3 pairs of sides, 3 pairs of \( \angle \)'s
Lesson 7.1.3 Resource Page

7-21 INTERIOR DESIGN

<table>
<thead>
<tr>
<th>Distance</th>
<th>Wire Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2'</td>
<td>(\sqrt{40} + \sqrt{52} \approx 13.8357\text{ feet})</td>
</tr>
<tr>
<td>3'</td>
<td>(\sqrt{45} + \sqrt{41} \approx 13.1113\text{ feet})</td>
</tr>
<tr>
<td>4'</td>
<td>(\sqrt{52} + \sqrt{32} \approx 12.8680\text{ feet})</td>
</tr>
<tr>
<td>5'</td>
<td>(\sqrt{61} + \sqrt{25} \approx 12.8102\text{ feet})</td>
</tr>
<tr>
<td>6'</td>
<td>(\sqrt{72} + \sqrt{20} \approx 12.7524\text{ feet})</td>
</tr>
<tr>
<td>5.5'</td>
<td>(\sqrt{66.81} + \sqrt{22.5} \approx 12.8528\text{ feet})</td>
</tr>
<tr>
<td>4.5'</td>
<td>(\sqrt{56} + \sqrt{38.12} \approx 12.8151\text{ feet})</td>
</tr>
<tr>
<td>4.4'</td>
<td>(\sqrt{40.01} + \sqrt{25.61} \approx 12.8472\text{ feet})</td>
</tr>
<tr>
<td>4.1'</td>
<td>(\sqrt{28.04} + \sqrt{26.24} \approx 12.8062\text{ feet})</td>
</tr>
<tr>
<td>4.0'</td>
<td>(\sqrt{20.09} + \sqrt{26.69} \approx 12.8025\text{ feet})</td>
</tr>
</tbody>
</table>

7-24. TAKE THE SHOT

Looking at the table, 4.6' from the left edge uses no less amount of cable, 12.8062 feet!
Midpoint is halfway, so add each x, y value together & divide by two.

\[ (0,3), (0,11) \] midpoint is \[ \left( \frac{0+0}{2}, \frac{3+11}{2} \right) \]

\[ (0,7) \]

5) Similar by \( \text{AA} \)

11 lines \( \Rightarrow 5 \) correls.

Here \( \text{AA} \)

6) Not enough info.

7) 32 a) \( y = mx + b \)

(1,1) \[ y = \frac{1}{2}x + \frac{1}{2} \]

3) \( y = m(3) + b \)

So AC is \( y = \frac{1}{2}x + \frac{1}{2} \)

BD has points

(2,3) \[ y = \frac{-1}{2}(x) + \frac{5}{2} \]

(4,1) \[ y = \frac{-1}{2}(x) + \frac{5}{2} \]

So BD is \( y = -x + 5 \)

They are NOT \( \parallel \) if they were, the slopes would multiply to \( -1 \).
We have a graphing calculator. Put the equation into the calculator. How it graphs then.