

Similar Figures and Proportions with Cabri Jr.

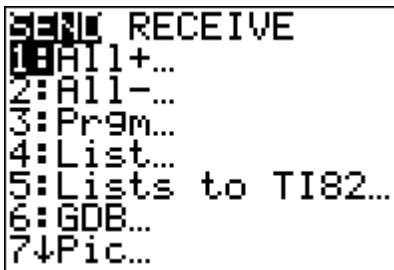
This activity utilizes the Cabri Jr. Application that now comes pre-loaded on TI-84 Family calculators. If you do not have Cabri Jr., it is a FREE download from the Texas Instruments website.

Allow students to work individually on this activity. You must send the students the Cabri Jr. file SIMFIG.

TO SEND/RECEIVE THE FILE:

Set the receiving calculator up first.

To do this first select 2nd link.



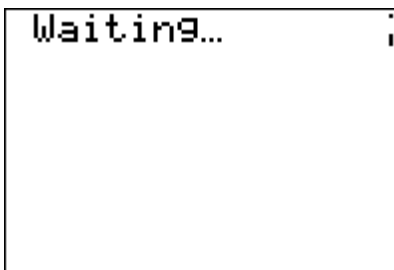
```
SEND RECEIVE
1: All+...
2: All-...
3: Prgm...
4: List...
5: Lists to TI82...
6: GDB...
7: Pic...
```

Arrow to the right to highlight the RECEIVE option.



```
SEND RECEIVE
1: Receive
```

Press enter to select this option. You should have a screen that says WAITING...



```
Waiting...
```

As soon as the receiving calculator says WAITING... you can send the file from the calculator that currently has the file.

To Send the file.

Select 2nd Link. Under Send select the 2: All- by pressing enter.

```
SEND RECEIVE
1: All+...
2: All-...
3: Prgm...
4: List...
5: Lists to TI82...
6: GDB...
7↓ Pic...
```

Then arrow down to select the SIMFIG file.

```
SEND TRANSMIT
*RTTRI4 AVAR
*RTTRI5 AVAR
*RTTRI6 AVAR
*S01 AVAR
*SIMFIG AVAR
*SIMFIG2 AVAR
*SIMFIG3 AVAR
```

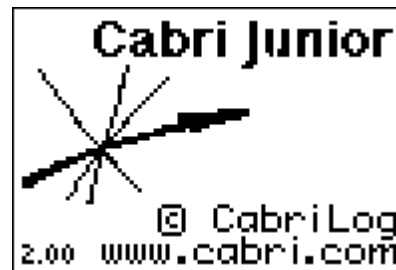
Press enter to select this file.

Arrow over to Transmit and press enter to transmit the file.

```
SELECT TRANSMIT
Transmit
```

After students have the file, they should be able to work through this activity with ease using the guided student worksheet. Make sure students are answering the questions as they are exploring these relationships.

On your TI-84 Plus calculator select the APPS button. Under APPS select the Cabri Jr. Application.

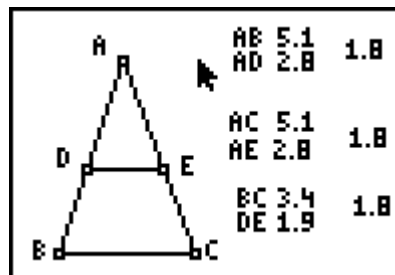


Press any key to continue.

EXPLORATION:

Let's explore the relationship between similar figures and ratios between corresponding sides.

1. In the Cabri Jr. APP, go to F1: OPEN the file titled SIMFIG.



2. Name all corresponding sides of triangle ABC and triangle ADE. Also, label their lengths.

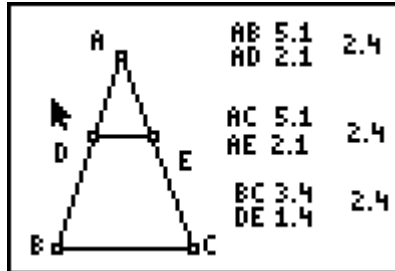
AB corresponds to AD AB is 5.1 units and AD is 2.8 units
 AC corresponds to AE AC is 5.1 units and AE is 2.8 units
 BC corresponds to DE BC is 3.4 units and DE is 1.9 units

This is the answer for the screen above, students answers may vary.

3. What do you notice about the ratios of corresponding parts of the similar triangles ABC and ADE? (Make sure that the ratios of corresponding sides are placed to the right of each group of measurements.)

The ratios of corresponding parts are all equal.

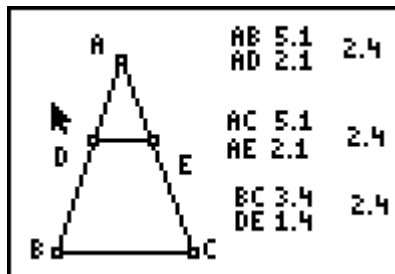
- Grab point D (move the cursor to point D, press ALPHA to get the “grab hand”, use the arrow keys to move the point, press CLEAR to release) and move the point along side AB.



- What do you observe about the measures? What do you observe about the ratios as you move point D?

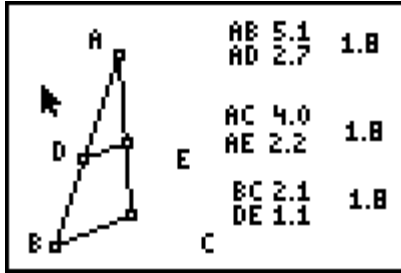
The measures from triangle ADE change but the ratios are still remaining equal to each other.

- You can say that the scale factor from triangle ADE to triangle ABC is 2.4 in the below sketch. What is the scale factor for your drawing?



- Next, grab a vertex and move it around (move the cursor to a vertex, press ALPHA to get the “grab hand”, use the arrow keys to move the point, press CLEAR to release). Again, what do you observe about the measures? What do you observe about the ratios as you move the vertex?

All measures are changing but the ratios of corresponding sides are still remaining equal.



8. In general, what is the relationship between ratios of corresponding parts of similar triangles?

In similar figures, ratios of corresponding sides are always equal. Therefore, the scale factor is the same for all corresponding sides.

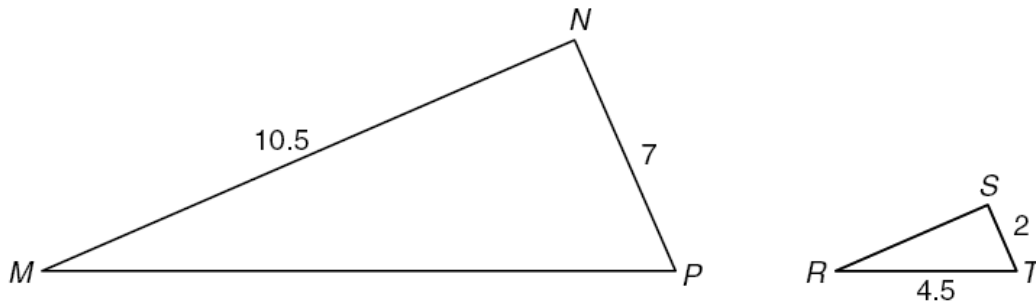
Extention:

Measure all angles in triangle ABC and triangle ADE. Make a conjecture about angles in similar triangles.

Corresponding angles are equal.

Check for Understanding This is a released TAKS question. Answer C.

$\triangle MNP \sim \triangle RST$ is shown below.



Which scale factor was used to transform $\triangle MNP$ to $\triangle RST$?

- A $\frac{1}{3}$
- B $\frac{1}{2}$
- C $\frac{2}{7}$
- D 5