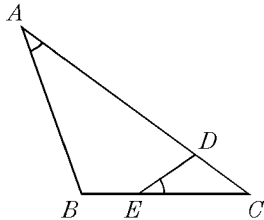Geometry CP

Similar triangles word problems
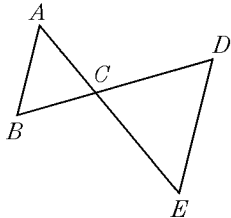
Name _____   Date _____
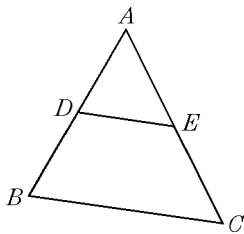
1. In the diagram, the congruences are as marked.
$\triangle ABC \sim$ _____ by _____ .
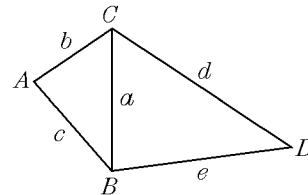

2. In the diagram, $\angle A \cong \angle E$. $\triangle ABC \sim$ _____
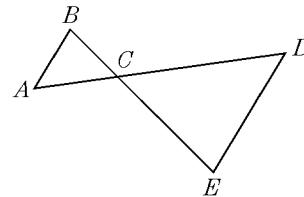by _____ .

3. In the diagram, $m\angle B = m\angle ADE$.
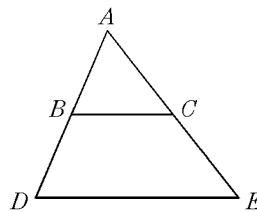$\triangle ABC \sim$ _____ by _____ .

4. In the diagram, it is known that $\dfrac{a}{d} = \dfrac{c}{e} = \dfrac{b}{a}$.
$\triangle ABC \sim \triangle$ _____ by _____ .

5. In the diagram, $BC : CE :: AC : CD$.
$\triangle BCA \sim$ _____ by _____ .

6. In the diagram, $AB : AD :: AC : AE$.
$\triangle BCA \sim$ _____ by _____ .

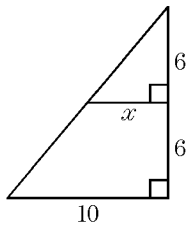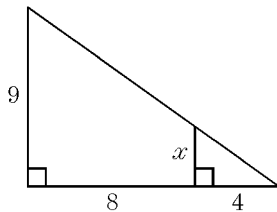Name _____   Date _____

7. In the diagram, $a = 6$, $b = 4$, $d = 9$, and $m\angle ACB = m\angle BCD = 60$. $\triangle ABC \sim$ _____ by _____.
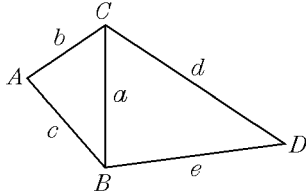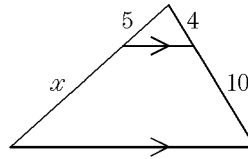

8. Find the value of x.
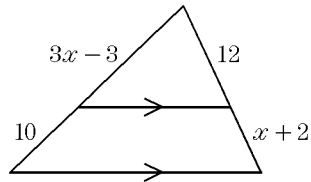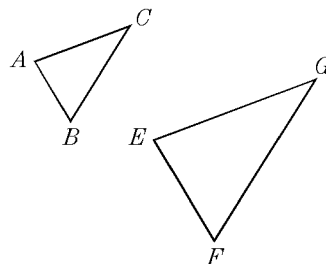

9. Find the value of x.

10. Find the value of x.

11. Find the value of x.

12. In the diagram, $\triangle ABC \sim \triangle EFG$, $AB = 12$, $EF = 30$, $BC = x$, and $FG = 2x + 11$. What is the value of x?
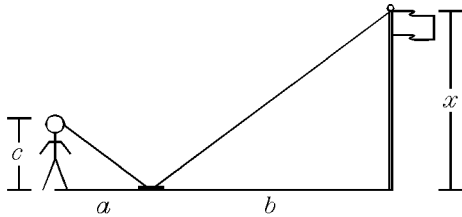
13. Sandy is trying to measure the height of a nearby flagpole using a mirror as shown in the diagram. The mirror is 6 meters away from the flagpole and 2 meters away from Sandy. The height to her eyes is 157 centimeters, from which she can clearly see the top of the flagpole. How many centimeters tall is the flagpole?

14. Raul is trying to measure the height of a nearby flagpole using a mirror as shown in the diagram. The mirror is 8 meters away from the flagpole and 3 meters away from Raul. The height to his eyes is 183 centimeters, from which he can clearly see the top of the flagpole. How many centimeters tall is the flagpole?

15. A flagpole 3 meters tall casts a shadow 5 meters long at the same time that a building nearby casts a shadow 62 meters long. How tall is the building?

16. A telephone pole 10 meters tall casts a shadow 8 meters long at the same time that a tree nearby casts a shadow 14 meters long. How tall is the tree?

17. On a sunny day, Bill wants to find the height of a tree. He walks 25 feet along the shadow that the tree casts until his shadow ends at the same point as the tree's shadow. Bill is 6 feet tall and the length of his shadow is 9 feet. How many inches tall is the tree?

18. A person 6 feet tall standing 18 feet away from a lamppost casts a 9 foot shadow. When the same person moves 4 feet farther from the lamppost, he will cast a shadow how long?
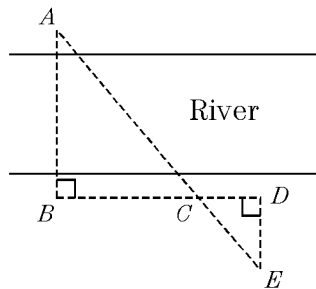
Name _____   Date _____

19. Tarzan, a respected mathematician, comes to a raging river while traveling in the jungle. In order to figure out how to get across the river he wants to know its width. Tarzan locates a tree at point A directly across the river. He marks the spot and then walks 28 paces to a point C where he pounds in a stake. Then he walks an additional 10 paces before turning perpendicularly to the river and walking until point C lines up with point A. This takes 14 paces. What is the width of the river in paces?

20. Tarzan, a respected mathematician, comes to a raging river while traveling in the jungle. In order to figure out how to get across the river he wants to know its width. Tarzan locates a tree at point A directly across the river. He marks the spot and then walks 28 paces to a point C where he pounds in a stake. Then he walks an additional 10 paces before turning perpendicularly to the river and walking until point C lines up with point A. This takes 14 paces. What is the width of the river in paces?

21. Tarzan, a respected mathematician, comes to a raging river while traveling in the jungle. In order to figure out how to get across the river he wants to know its width. Tarzan locates a tree at point A directly across the river. He marks the spot and then walks 25 paces to a point C where he pounds in a stake. Then he walks an additional 10 paces before turning perpendicularly to the river and walking until point C lines up with point A. This takes 12 paces. What is the width of the river in paces?

22. Peter takes a picture of Wendy during a vacation in Neverland. Wendy is 158 cm tall and is 2.4 meters away from the camera lens. The film is 4 cm from the lens. How tall is her image on the film to the nearest tenth of a centimeter?

23. Two vertical poles have heights of 7 feet and 12 feet. A rope is stretched from the top of each pole to the bottom of the other. Exactly how far above the ground do the ropes cross?

24. Two vertical poles have heights of 5 feet and 11 feet. A rope is stretched from the top of each pole to the bottom of the other. Exactly how far above the ground do the ropes cross?

25. A triangle with side lengths 5, 11, and 15 is similar to another triangle with longest side of length 24. What is the perimeter of the larger triangle?

Geometry CP   Similar triangles word problems   Mr. Brocket   2/27/2012

1.
Answer: $\triangle EDC$; AA $\sim$
CodePath: EAS.GEO.G.D.8

2.
Answer: $\triangle EDC$; AA $\sim$
CodePath: EAS.GEO.G.D.3

3.
Answer: $\triangle ADE$; AA $\sim$
CodePath: EAS.GEO.G.D.5

4.
Answer: $\triangle BDC$; SSS $\sim$
CodePath: EAS.GEO.G.D.12

5.
Answer: $\triangle ECD$; SAS $\sim$
CodePath: EAS.GEO.G.D.17

6.
Answer: $\triangle DEA$; SAS $\sim$
CodePath: EAS.GEO.G.D.18

7.
Answer: $\triangle BDC$; SAS $\sim$
CodePath: EAS.GEO.G.D.20

8.
Answer: 5
CodePath: EAS.GEO.G.I.9

9.
Answer: 3
CodePath: EAS.GEO.G.I.10

10.
Answer: 12.5
CodePath: EAS.GEO.G.I.13

11.
Answer: 6
CodePath: EAS.GEO.G.I.15

12.
Answer: 22
CodePath: EAS.GEO.G.I.17

13.
Answer: 471 cm
CodePath: EAS.GEO.G.I.21

14.
Answer: 488 cm
CodePath: EAS.GEO.G.I.22

15.
Answer: 37.2 m
CodePath: EAS.GEO.G.I.25

16.
Answer: 17.5 m
CodePath: EAS.GEO.G.I.26

17.
Answer: 272 in.
CodePath: EAS.GEO.G.I.27

18.
Answer: 11 ft
CodePath: EAS.GEO.G.I.29

19.
Answer: 39.2 paces
CodePath: EAS.GEO.G.I.31

20.
Answer: 39.2 paces
CodePath: EAS.GEO.G.I.31

21.
Answer: 30 paces
CodePath: EAS.GEO.G.I.32

22.
Answer: 2.6 cm
CodePath: EAS.GEO.G.I.35

23.
Answer: $\frac{84}{19}$ ft
CodePath: EAS.GEO.G.I.37

24.
Answer: $\frac{55}{16}$ ft
CodePath: EAS.GEO.G.I.38

25.
Answer: 49.6 units
CodePath: EAS.GEO.G.I.41