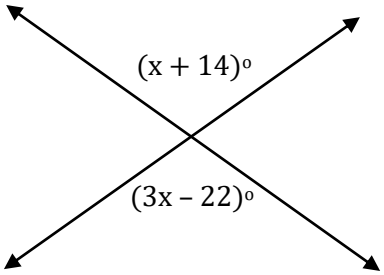
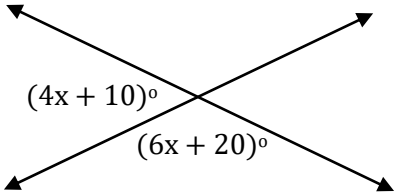
Geometry Competency Placement Exam Practice - Bellarmine Preparatory School

Find the value of x.

1.



2.



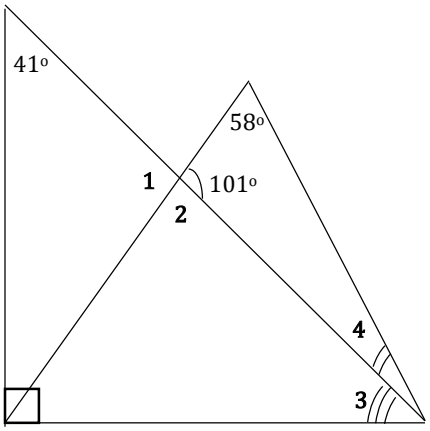
Find the distance between the given points. Leave your answer in simplest radical form when necessary.

3. (2, 5) and (6, 2)

4. (-1, 7) and (0, 5)

5. (-2, -4) and (3, -7)

Use the figure below to find the measures of the indicated angles.



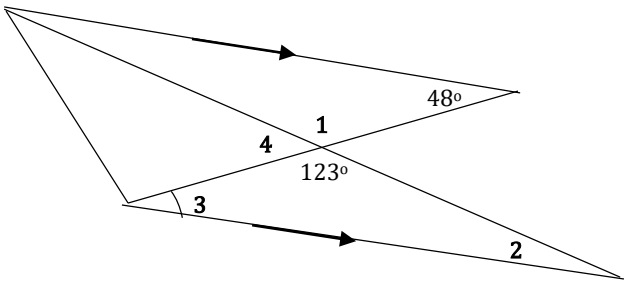
6. m∡1 = _____

7. m∡2 = _____

8. m∡3 = _____

9. m∡4 = _____

Use the figure below to find the measures of the indicated angles.



10. m∡1 = _____

11. m∡2 = _____

12. m∡3 = _____

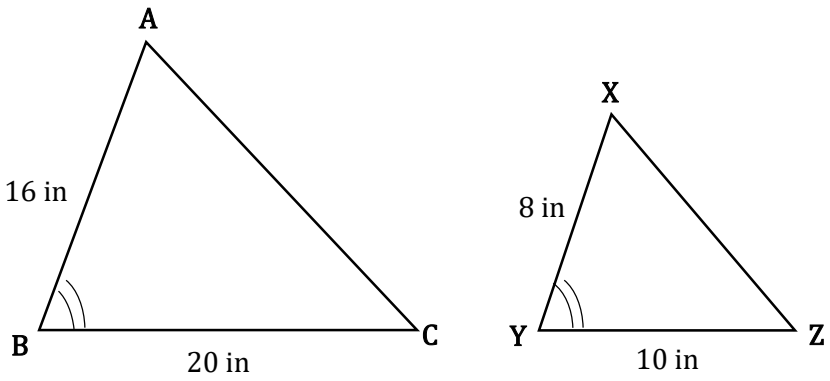
13. m∡4 = _____

14. If the longer leg of a 30^o-60^o-90^o triangle is 8 cm long, find the area and the perimeter. Leave in reduced radical form if necessary. (Hint: draw a picture)

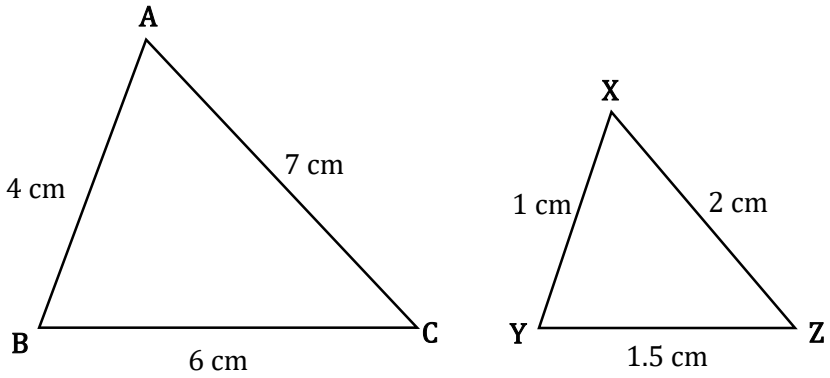
15. In a 45^o-45^o-90^o triangle, if the hypotenuse is 10 in, find the area and perimeter. Leave in reduced radical form if necessary. (Hint: draw a picture)

16. In an equilateral triangle, if the length of one side is 12 ft, what is the height of the triangle? Leave in reduced radical form if necessary. (Hint: draw a picture)

17. Are the triangles below similar? Why or why not? (State a postulate or theorem to support your answer)



18. Are the triangles below similar? Why or why not? (State a postulate or theorem to support your answer)



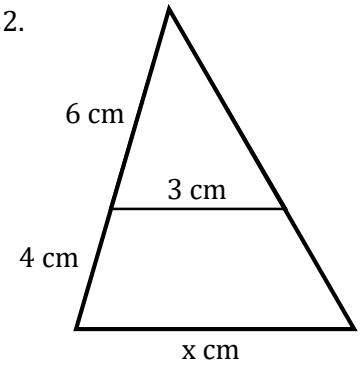
19. Solve for x. $\frac{9}{x+2} = \frac{6}{x-1}$

20. Given a triangle with sides 15 m and 18 m, what is the range of possible lengths for the third side?

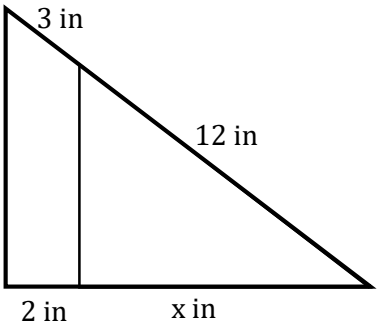
21. Given a triangle with sides 4 ft and 2 ft, what is the range of possible lengths for the third side?

Find the value of x, given the lines are parallel.

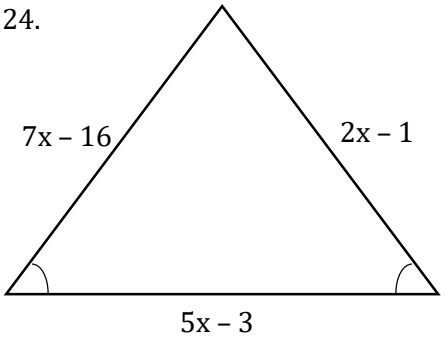
22.



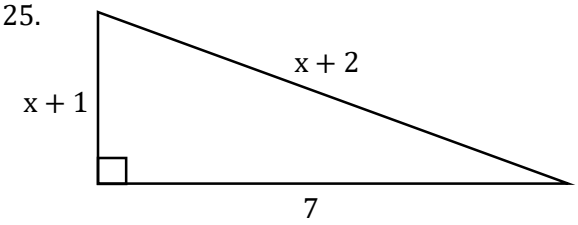
23.



24.

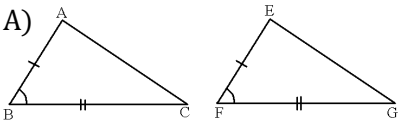


25.

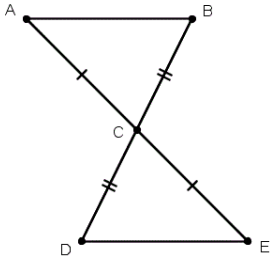


26. Which of the pairs of triangles drawn below **cannot** be proved congruent based on only the given information?

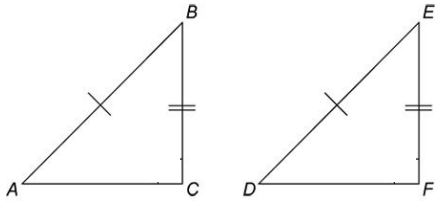
A)



B)



C)



27. Use the figure below to identify the following trigonometric ratios.

sin B =

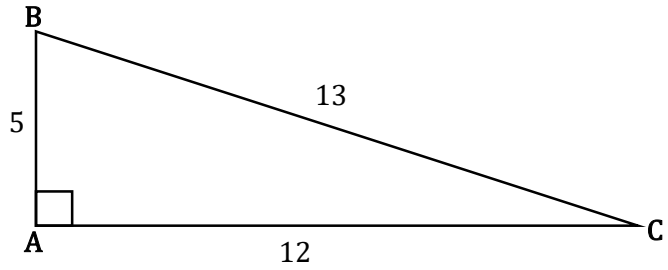
cos B =

tan B =

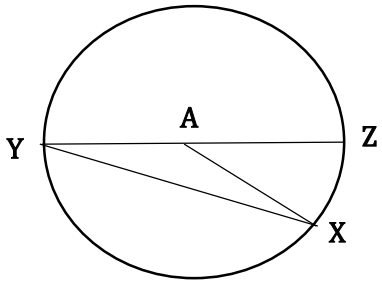
sin C =

cos C =

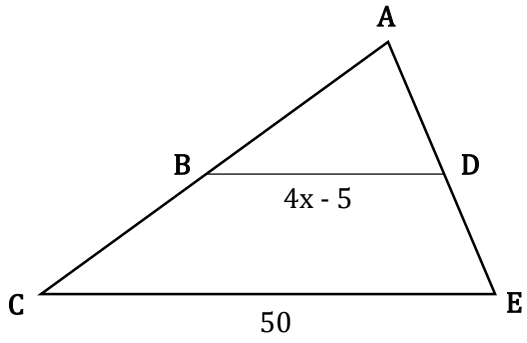
tan C =



28. Given: in the circle below, point A is the center and m$\widehat{XYZ}$ = 284°. Find m∠XYZ and m∠XAZ.



29. Given that $\overline{BD}$ is a midsegment, solve for x.



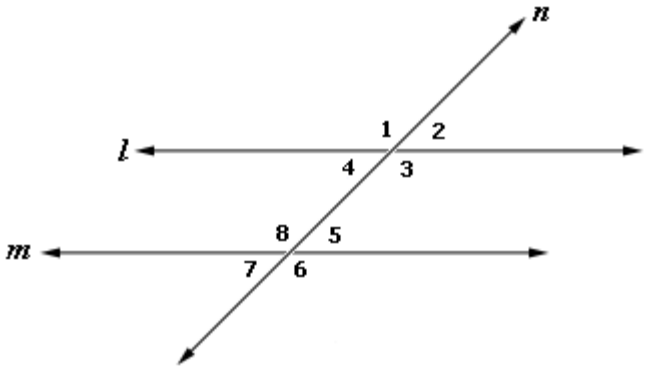
30. Two figures are similar. The ratio of their perimeters is 4:5. What is the ratio of their corresponding areas?

31. Draw and label a sketch to show the following situation:
- D is on the interior of ∡ABC
- E is on the interior of ∡DBC
- ∡ABC is an obtuse angle

32. Draw and label a sketch to show the following situation, then solve for the measure of the missing angle
- W is on the interior of ∡XYZ
- m∡XYZ = 78°
- m∡XYW = 43°

33. The coordinates of ΔXYZ are given at X(0, 0), Y(0, 5), and Z(3, 2). Find the coordinates of the image ΔA'B'C' after it is reflected over the line y = -1

34. Find the values of x and y given that lines *l* and *m* are parallel, and m∡1 = 42°, m∡3 = (2x + 8)° and m∡5 = 4y°



35. Write the equation of a line in slope-intercept form of a line parallel to y = 4x – 1 that passes through (2, -3)

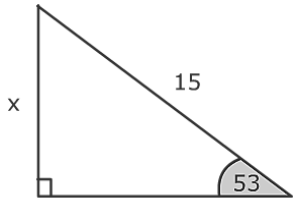
36. Write the equation of a line in slope-intercept form of a line perpendicular to y = 2x that passes through (6, 2)

37. If a circle has an area of 81π m^2, find the circumference of the circle.

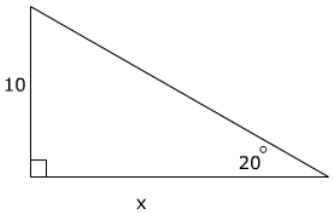
38. A ladder leaning against a wall makes a 67° angle with the ground. If the ladder is 20ft long, how far away from the base of the wall is the base of the ladder?

Solve for x.

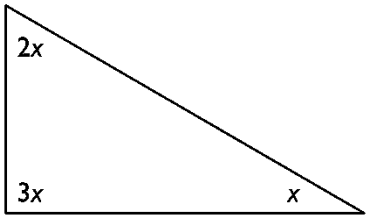
39.



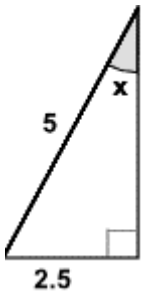
40.



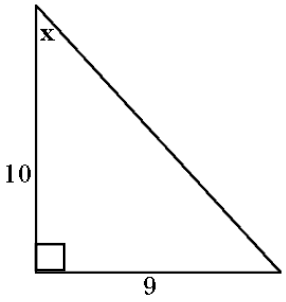
41.



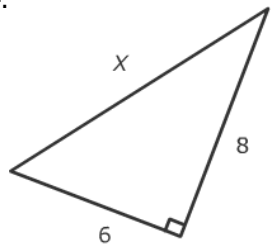
42.



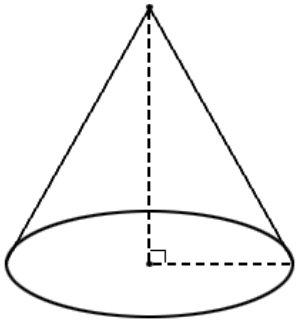
43.



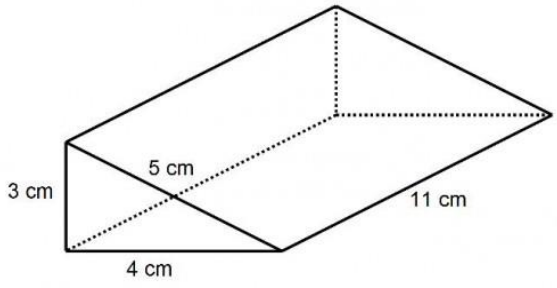
44.



45. Find the surface area and volume of a cone with a radius of 6 cm and a slant height of 10 cm.



46. Find the surface area and volume of the prism below.



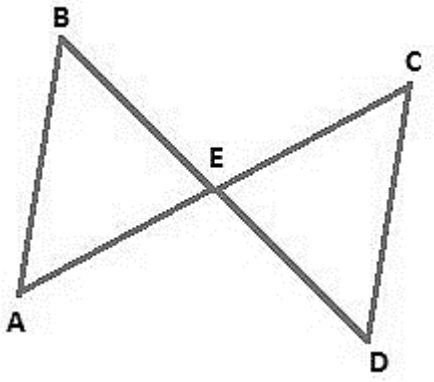
47. Find the surface area and volume of a cylinder with a diameter of 14 feet and a height of 20 feet.

48. Find the surface area and volume of a cube with a side length of 4 inches.

49. Set up a two column proof. If your geometry class has not done much proving, then try to use the given and explain why the statement must be true.

Given: ∡B ≅ ∡D and E is the midpoint of $\overline{AC}$

Prove: ΔBEA ≅ ΔDEC



50. Find the value of x and y.