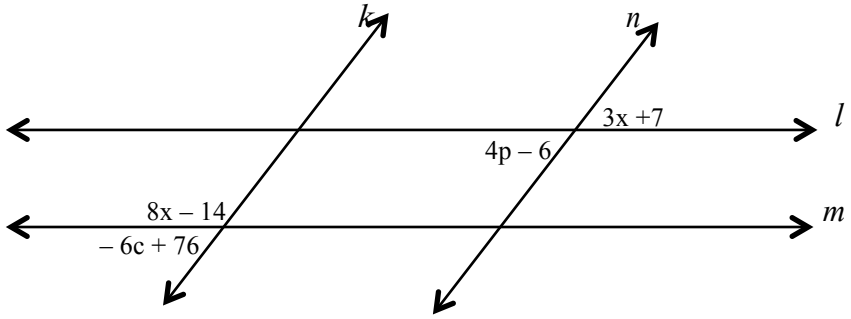
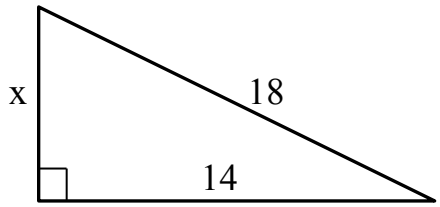
Geometry Homework #5

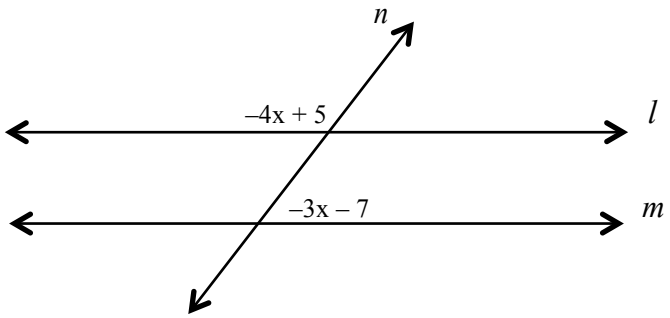
1) If $l \parallel m$ and $k \parallel n$, find the sizes of the four angles and find the values of x, p, and c in the following drawing:



2) If the following triangle is a right triangle, find x exactly:



3) If $l \parallel m$, find x and the sizes of both angles in the following drawing:



4) Plot the points A (-3,2), B (3,7), C (1,1), and D (-5,-4) all on the same graph. Find the midpoint, distance, and slope between points A and B, B and C, C and D, and D and A. Use this information to determine the exact geometric shape of ABCD.

5) A soccer field is a rectangle that is 240 feet wide and 360 feet long. If Joshua runs from one corner of the field to the opposite corner, diagonally across from him, how far, exactly, does he run?

6) Find the sum of the interior angles, the sum of the exterior angles, the size of one interior angle, and the size of one exterior angle in a regular pentagon.

7) For a regular heptagon, find, exactly, its apothem, its area, and the areas of the inscribed and circumscribed circles if its radius is 9 and the length of one of its sides is 8.

8) Find the sum of the interior angles, the sum of the exterior angles, the size of one interior angle, and the size of one exterior angle in a regular octagon.

9) For a regular triangle, find, exactly, its radius, the length of one of its sides, its area, and the areas of the inscribed and circumscribed circles if its apothem is 16.

10) For a regular octagon, find, exactly, its radius, its area, and the areas of the inscribed and circumscribed circles if its apothem is 12 and the length of one of its sides is 10.

11) For a regular hexagon, find, exactly, its radius, its apothem, its area, and the areas of the inscribed and circumscribed circles if the length of one of its sides is 18.

12) For a regular pentagon, find, exactly, the length of one of its sides, its area, and the areas of the inscribed and circumscribed circles if its radius is 26 and its apothem is 21.

13) For a regular quadrilateral, find, exactly, its radius, the length of one of its sides, its area, and the areas of the inscribed and circumscribed circles if its apothem is 12.

14) For a regular triangle, find, exactly, its radius, its apothem, its area, and the areas of the inscribed and circumscribed circles if the length of one of its sides is $18\sqrt{3}$.

15) For a regular decagon, find, exactly, its apothem, its area, and the areas of the inscribed and circumscribed circles if its radius is 37 and the length of one of its sides is 24.

16) For a regular hexagon, find, exactly, its radius, the length of one of its sides, its area, and the areas of the inscribed and circumscribed circles if the apothem is 14.

17) Find the sum of the interior angles, the sum of the exterior angles, the size of one interior angle, and the size of one exterior angle in a regular decagon.

18) For a regular nonagon, find, exactly, the length of one of its sides, its area, and the areas of the inscribed and circumscribed circles if its radius is 29 and its apothem is 21.

19) For a regular quadrilateral, find, exactly, its apothem, the length of one of its sides, its area, and the areas of the inscribed and circumscribed circles if its radius is $8\sqrt{2}$.

20) For a regular hexagon, find, exactly, its radius, its apothem, its area, and the areas of the inscribed and circumscribed circles if the side length is 10.