

Simplify.

1. $\frac{1}{4}\sqrt{400}$

2. $2\sqrt{99}$

3. $\sqrt{\frac{5}{12}}$

4. $2\sqrt{45} + 4\sqrt{20}$

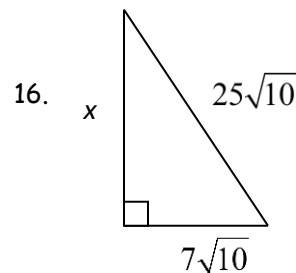
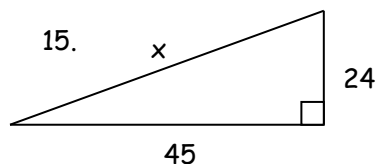
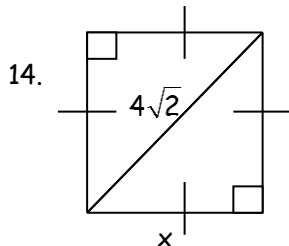
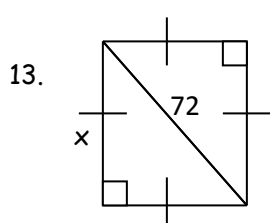
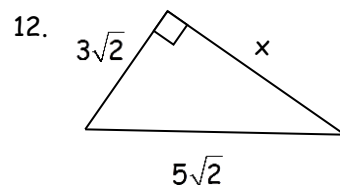
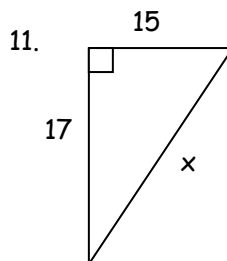
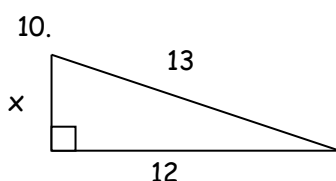
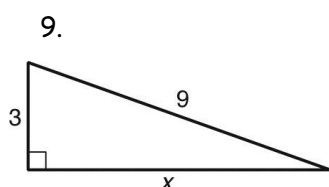
5. $8\sqrt{54} + 4\sqrt{6}$

6. $\sqrt{72} + \sqrt{75} - \sqrt{48}$

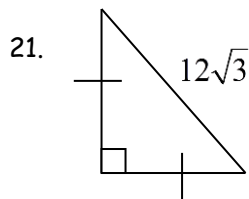
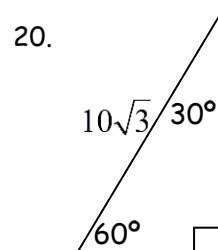
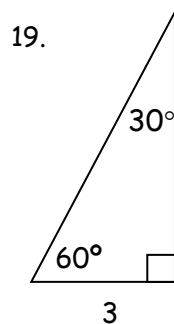
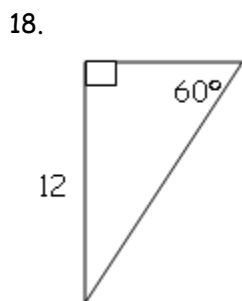
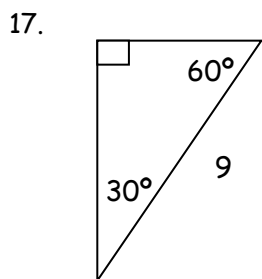
7. $4\sqrt{3} + 2\sqrt{12}$

8. Solve $4x^2 - 10x - 6 = 0$.

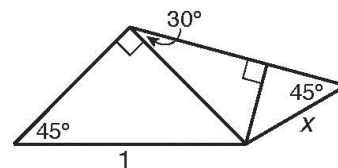
Solve for x.



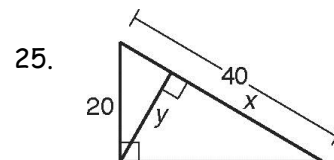
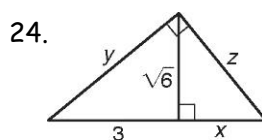
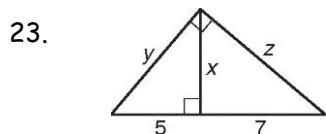
Find the values of the missing sides. Give your answers in simplest radical form.



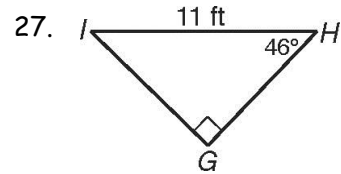
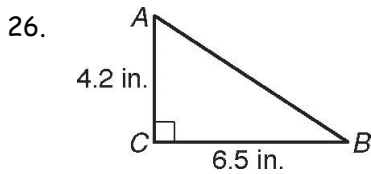
22. Solve for x.



For #23 - 24, find x , y , and z . For #25, find y .



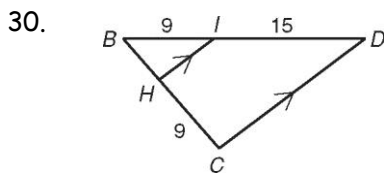
Solve each right triangle. Round lengths to the nearest hundredth and angle measures to the nearest degree.



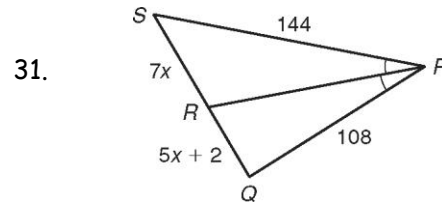
28. Maria is looking out at a 17-foot high window and sees a deer. The angle of depression to the deer is 26° . What is the horizontal distance from Maria to the deer? Round to the nearest foot.

29. Jared is standing 12 feet from a rock-climbing wall. When he looks up to see his friend ascend the wall, the angle of elevation is 56° . How high up the wall is his friend? Round to the nearest foot.

Find each length.



BH = _____

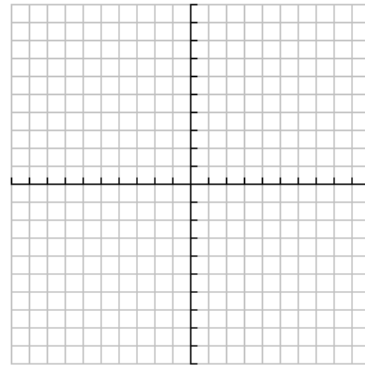
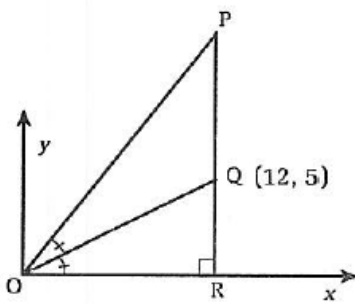


SR = _____ RQ = _____

32. \overrightarrow{OQ} bisects $\angle POR$.

Point Q has coordinates (12, 5) and $OP = 18$.

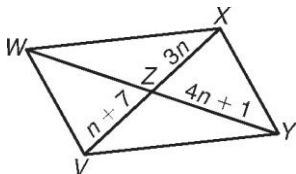
Find the coordinates of point P.



34. If the altitude of an equilateral triangle is $6\sqrt{3}$, find the perimeter of the triangle.

35. If $\frac{7}{x+4y} = \frac{9}{2x-y}$, find the ratio of x to y .

36. $VWXY$ is a parallelogram. Find each measure.



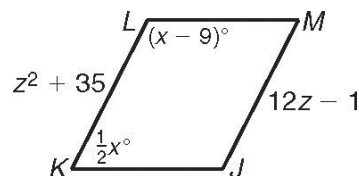
VX : _____

XZ : _____

ZW : _____

WY : _____

37. $JKLM$ is a parallelogram. Find each measure.

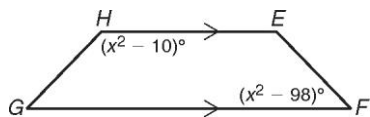


$m\angle L$: _____

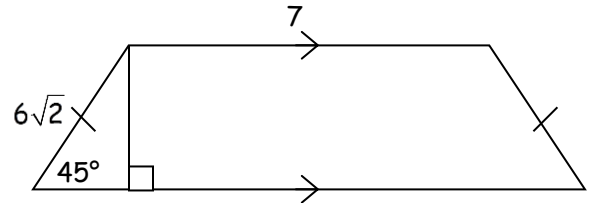
$m\angle K$: _____

MJ : _____

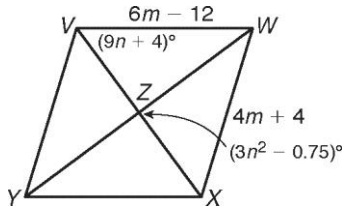
38. Find the value of x so that $EFGH$ is isosceles.



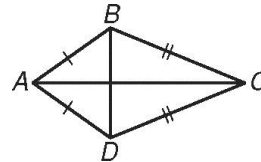
39. Find the length of the unknown base.



40. $VWXY$ is a rhombus. Find the measure of XY .



41. $ABCD$ is a kite, $m\angle BAC = 35^\circ$ and $m\angle BCD = 44^\circ$. What is $m\angle BDC$?

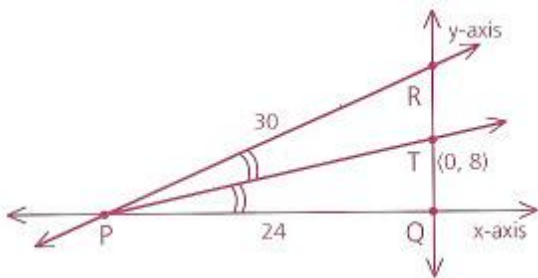


42. Give the most descriptive name: a quadrilateral whose diagonals are perpendicular and congruent, and bisect each other.

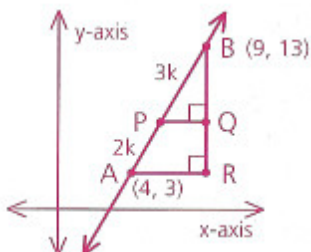
43. Give the most descriptive name: a quadrilateral whose congruent diagonals bisect each other and bisect the angles.

44. A 60 meter tower casts a 50 meter shadow, while one-half block away a telephone pole casts a 20 meter shadow. How tall is the telephone pole?

45. Given: \overline{PT} bisects $\angle RPQ$. $PR = 30$, $PQ = 24$.
Find: The coordinates of point R.



46. $\overline{BR} \parallel y\text{-axis}$, $\overline{AR} \parallel x\text{-axis}$, and point P divides \overline{AB} in the ratio 2:3. Find the coordinates of points R and Q.
 (Hint: Find BQ and QR)



47. Find the geometric mean of each pair of numbers. If necessary, give your answer in simplest radical form.

a.) 4 and 18

b.) $\frac{1}{2}$ and 9

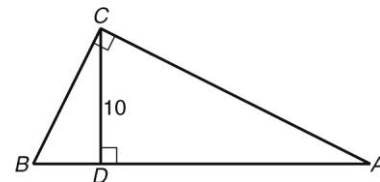
c.) 10 and 14

48. 1 is the geometric mean between 4 and what number?

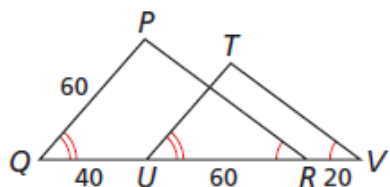
49. 15 is the geometric mean between 3 and what number?

50. 7 is the geometric mean between 4 and what number?

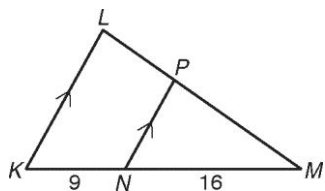
51. Given the diagram, if $DA = 4(BD)$, what is the perimeter of $\triangle ABC$ in simplest form?



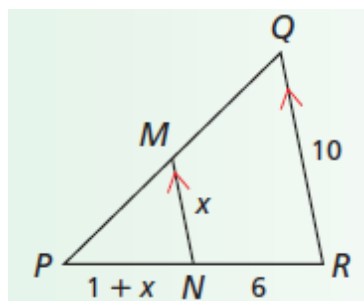
52. Find the measure of TU.



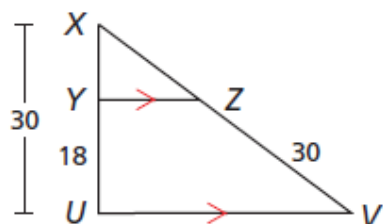
54. If $LM = 22$, what is PM ?



55. Find the measure of MN and PR.



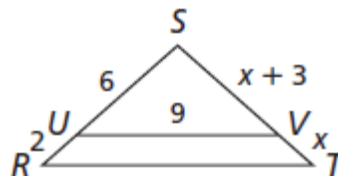
57. Find the length of segment XZ.



53. Complete the chart:

| | 30° | 45° | 60° |
|-----|------------|------------|------------|
| sin | | | |
| cos | | | |
| tan | | | |

56. $\triangle SUV \sim \triangle SRT$. Find each length.



RT: _____ VT: _____ ST: _____

58. Given: $\overline{PQ} \parallel \overline{RS} \parallel \overline{TU}$

a.) Find PR, RT, QS, and SU.

b.) Use your results from part a to write a proportion relating the segment lengths.

