# CHAPTER 7 REVIEW

41. Find x.
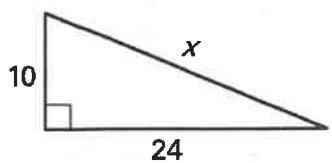
$$10^2 + 24^2 = x^2$$
$$100 + 576 = x^2$$
$$676 = x^2$$
$$\sqrt{676} = x$$
$$26 = x$$

42. Find the area of the isosceles triangle. Leave your answer in simplest radical form, if necessary.

10 in.   10 in.   h   7   14 in.
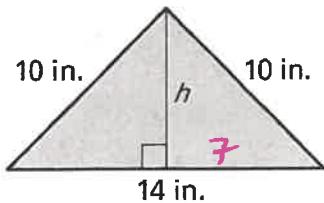
$$7^2 + h^2 = 10^2$$
$$49 + h^2 = 100$$
$$h^2 = 51$$
$$h = \sqrt{51} = x$$

$$A = \frac{1}{2} b \cdot h$$
$$= \frac{1}{2}(14)\sqrt{51}$$
$$= 7\sqrt{51}$$

Determine whether the given values represent an acute, right or obtuse triangle.

43. $20, 21, 28$

$$20^2 + 21^2 \qquad 28^2$$
$$400 + 441 > 784$$
$$\boxed{\text{Acute!}}$$

44. $14, 48, 50$

$$14^2 + 48^2 \qquad 50^2$$
$$196 + 2304 = 2500$$
$$\boxed{\text{Right}}$$

45. $5, 12, 18$

$$5^2 + 12^2 \qquad 18^2$$
$$25 + 144 \qquad 324$$
$$169 < 324$$
$$\boxed{\text{OBTUSE}}$$

46. $5, 5, 5\sqrt{2}$

$$5^2 + 5^2 \qquad (5\sqrt{2})^2$$
$$25 + 25 \qquad 25 \cdot 2$$
$$50 = 50$$
$$\boxed{\text{Acute}}$$

Find the value of each variable in the special right triangles. Leave your answer in simplest radical form.

47.

$6\sqrt{3}$ $x\sqrt{3}$ $x = 6$ x x $30°$ $2x$ y $6 \cdot (2)$ $y = 12$

48.

$45°$ $9\sqrt{2}$ x 9 $x\sqrt{2}$ x $45°$ 9

49.

$y = 4\sqrt{3}$ $x\sqrt{3}$ x $x = 4$ $30°$ $2x$ $60°$ 8

5
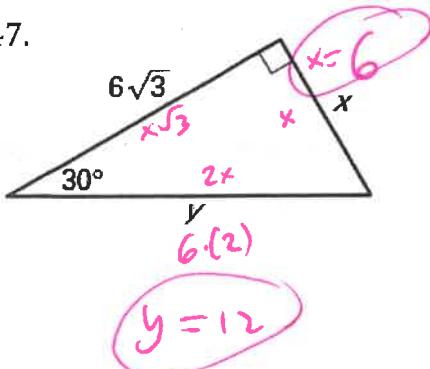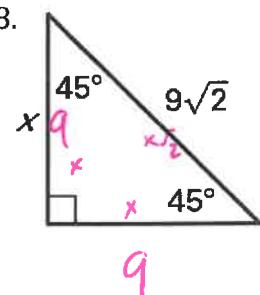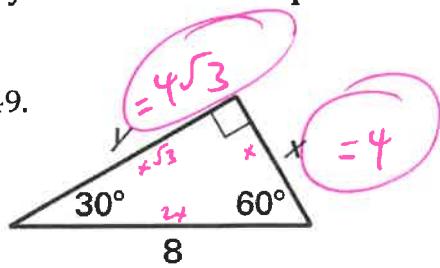
Use trigonometric ratios to find the given value. Round answers to the nearest tenth.

50. Find TA.   "CAH"

$\cos 24 = \dfrac{33}{h}$

$h = \dfrac{33}{\cos 24}$

$h = 36.1$

51. Find MD.   "toa"

$\tan 50 = \dfrac{21}{x}$

$x = \dfrac{21}{\tan 50}$

$x = 17.6$

52. Find PQ.   "Soh"

$\sin 37 = \dfrac{y}{22}$

$y = 22 \sin 37$

$y = 13.2$

53. Find ST.   "Cah"

$\cos 70° = \dfrac{x}{15}$

$x = 15 \cos 70°$

$x = 5.1$

CHAPTER 8 REVIEW

Find the sum of the interior angles of the indicated convex polygon.

$(n-2)180$

54. Pentagon

$(5-2)180$

$3 \cdot 180$

540

55. Nonagon

$(9-2)180$

$7(180)$

1260

**The sum of the interior angles of a convex polygon is given. Classify the polygon by the number of sides.**

56. 1440

$(n-2)180 = 1440 \div 180$

$n-2 = 8$

$n = 10$ decagon

57. 900

$(n-2)180 = 900 \div 180$

$(n-2) = 5$

$n = 7$ heptagon

Find the value of x.

58. $n = 5$ pentagon

$3x + 2x + 64 + 86 + 110 = 540$

$5x + 260 = 540$

$5x = 280$

$x = 56$

64°, 3x°, 86°, 110°, 2x°

59.   exterior ∠'s all add to 360°

$x + 2x + 4x + 60 + 90 = 360$

$7x + 150 = 360$

$7x = 210$

$x = 30°$

60°, 90°, 4x°, 2x°, x°

6

Find the value of each variable in the parallelogram.

60.

$b + 2$

$a - 3$ 14

7

$a-3=14$
$a=17$

$b+2=7$
$b=5$

61.

$2p°$

49

$5q + 4$

$124°$

$2p = 124$
$p = 62$

$5q+4=49$
$5q = 45$
$q = 9$

62.

31

$4j + 9$

$6j - 5$

$7k - 4$

$4j + 9 = 6j - 5$
$14 = 2j$
$7 = j$

$7k - 4 = 31$
$7k = 35$
$k = 5$
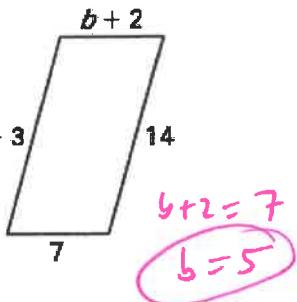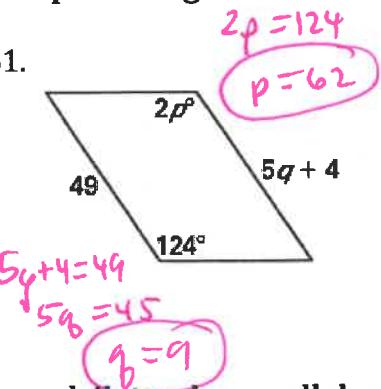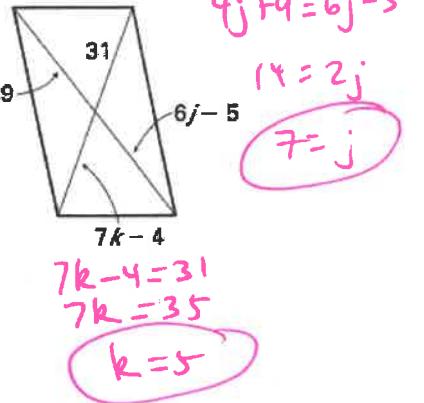
Find the value of x that makes the quadrilateral a parallelogram.

consec ∠'s are supplementary

63.
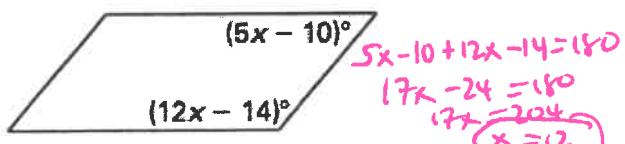
$(5x - 10)°$

$(12x - 14)°$

$5x - 10 + 12x - 14 = 180$
$17x - 24 = 180$
$17x = 204$
$x = 12$

64.

$x + 4$

$2x - 1$
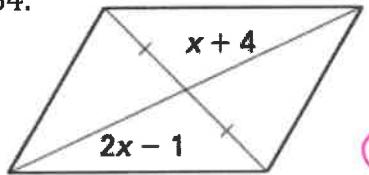
$x + 4 = 2x - 1$
$5 = x$

Find the value of each interior angle.

65.

A $97°$ 83 B

D 97 83 C
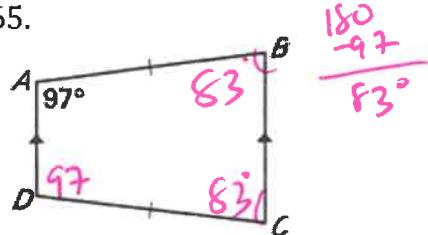
$\frac{180}{-97}$
$83°$

Find the value for x.

66.

21

M x N

17

$x = \frac{1}{2}(21 + 17)$
$x = \frac{1}{2}(38)$
$x = 19$

67.

M

43 32 $4x$

N
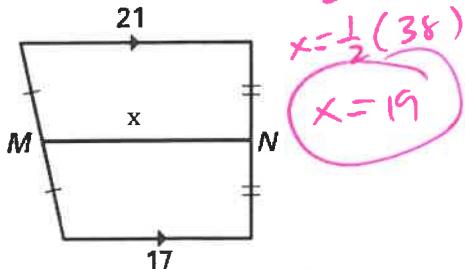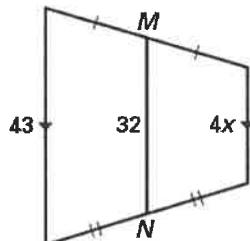
$^2 \cdot 32 = \frac{1}{2}(43 + 4x) \cdot 2$
$64 = 43 + 4x$
$\frac{21}{4} = \frac{4x}{4}$
$5.25 = x$

Find the measure of $\angle K$ in the kite.

68.

J

M $88°$ $88°$ K

$120°$

L

$88°$

69.

M

J $60°$ x $50°$ L

x

K
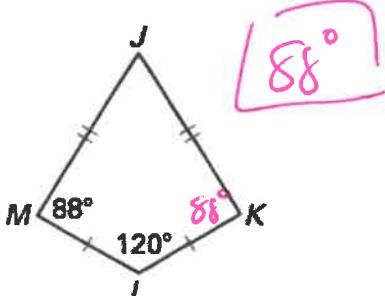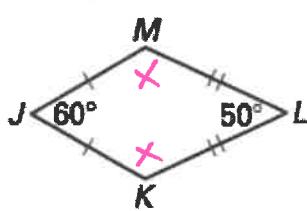
$x + x + 60 + 50 = 360$
$2x + 110 = 360$
$2x = 250$
$x = 125°$

**Find the perimeter of the kite. Round your answer to the nearest hundredth.**

70.
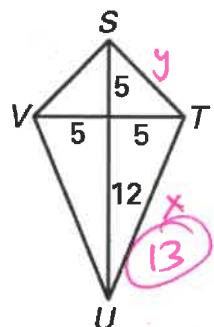
$5^2 + 5^2 = y^2$
$25 + 25 = y^2$
$50 = y^2$
$\sqrt{50}$ — $y = 7.1$

$5^2 + 12^2 = x^2$
$25 + 144 = x^2$
$169 = x^2$
$13 = x$

7.1
+7.1
+13
+13
___
40.2

Give the most specific name for the quadrilateral and explain your reasoning.

71.

kite

72.

10, 10, 10, 10
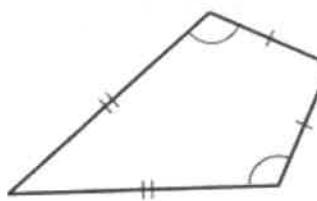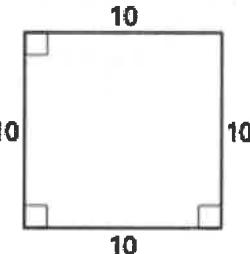
Square

73.
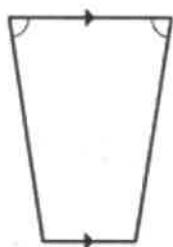
isosceles trapezoid

74.
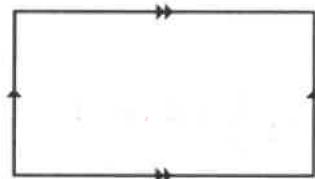
parallelogram (no rt. ∠'s)

Points P, Q, R, and S are the vertices of a quadrilateral. Give the most specific name fro PQRS. Justify your answer.

75. P(-1, 3), Q(4, 2), R(1, -1), S(-4, 0)
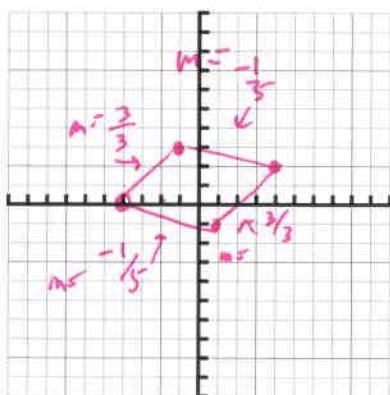
both sets of opp. sides are ∥

parallelogram

8