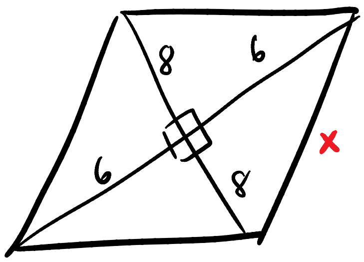
9.4 pgs. 387 - 389
#3, 6, 11,
13 - 17, 20

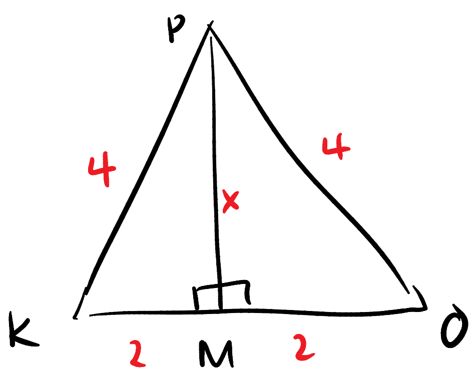
#3 Find perimeter of rhombus



$6^2 + 8^2 = x^2$
$36 + 64 = x^2$
$100 = x^2$
$10 = x$

$P = 4(10) = \boxed{40}$

#6 PM is an altitude of equilateral triangle PKO.
If PK = 4, find PM



$x^2 + 2^2 = 4^2$
$x^2 + 4 = 16$
$x^2 = 12$
$x = \pm\sqrt{4 \cdot 3}$
$x = \pm 2\sqrt{3}$

$\boxed{PM = 2\sqrt{3}}$

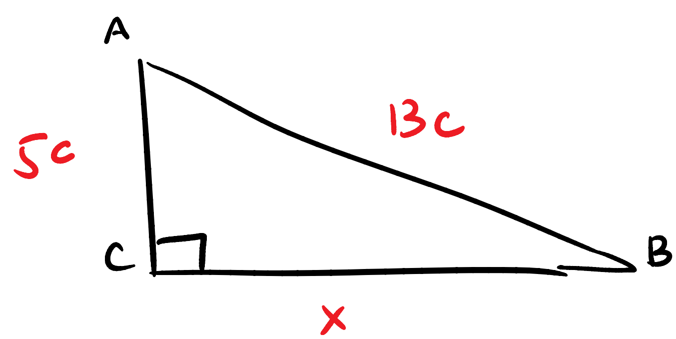
#11 a. $x^2 + y^2 = AB^2$

$\boxed{\sqrt{x^2+y^2} = AB}$

b. $2^2 + x^2 = AB^2$

$\boxed{\sqrt{4+x^2} = AB}$

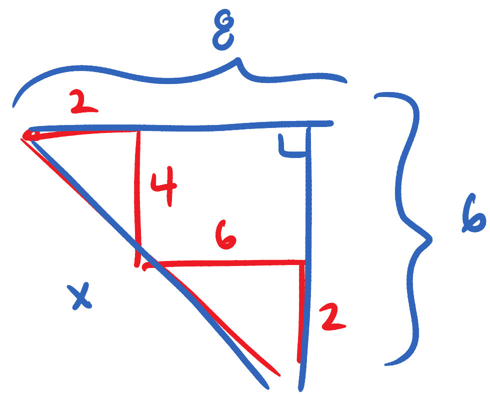
c $(3a)^2 + (4a)^2 = AB^2$
$9a^2 + 16a^2 = AB^2$
$\sqrt{25a^2} = AB$
$\boxed{5a = AB}$



d. $BC^2 + (5c)^2 = (13c)^2$
$BC^2 + 25c^2 = 169c^2$
$BC^2 = 144c^2$
$\boxed{BC = 12c}$

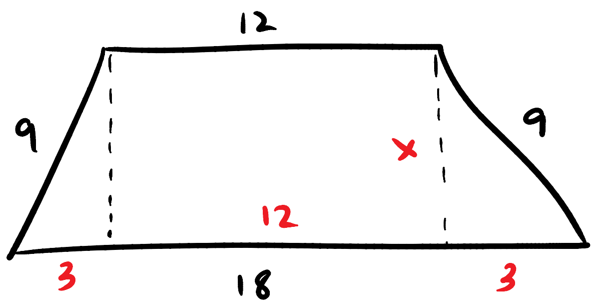
#13

Al Capone walked 2 km north, 6 km west, 4km north, and 2 km west. If Big Al decides to "go straight," how far must he walk across the fields to his starting point.



$$8^2+6^2=x^2$$
$$100=x^2$$
$$10=x$$
$$\boxed{10\text{km}}$$

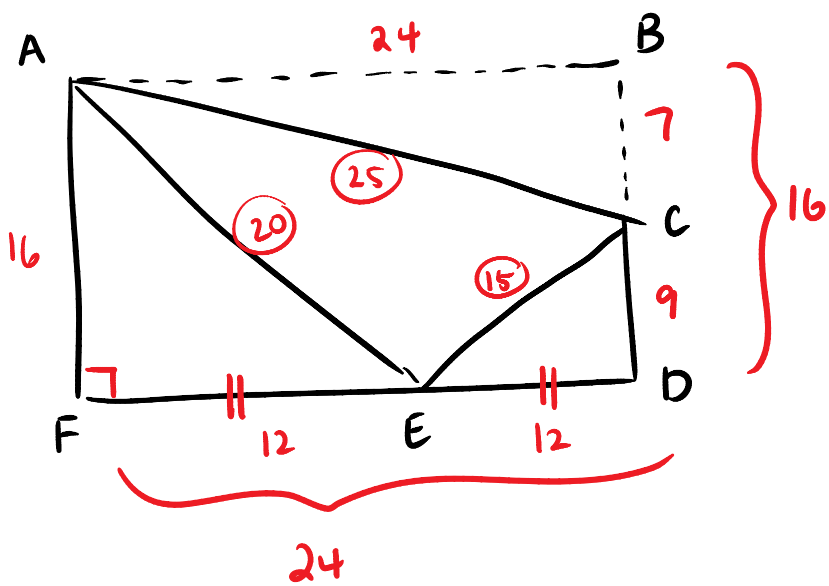
#14 Find the altitude (length of a segment perpendicular to both bases) of the isosceles trapezoid shown



$$x^2+3^2=9^2$$
$$x^2+9=81$$
$$x^2=72$$
$$x=\sqrt{36\cdot 2}$$
$$x=\pm 6\sqrt{2}$$

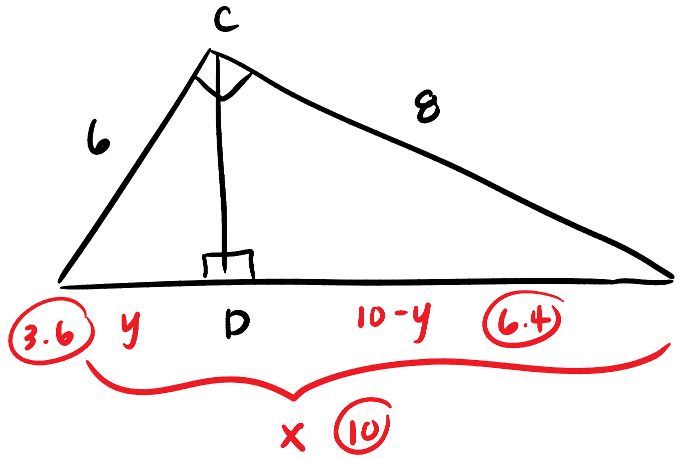
$$\boxed{6\sqrt{2}}$$

#15 A piece broke off a rectangle ABDF, leaving trapezoid ACDF.
What is the perimeter of triangle ACE



$$P=15+20+25=\boxed{60}$$

#16 Given: Diagram as shown
Find: CD

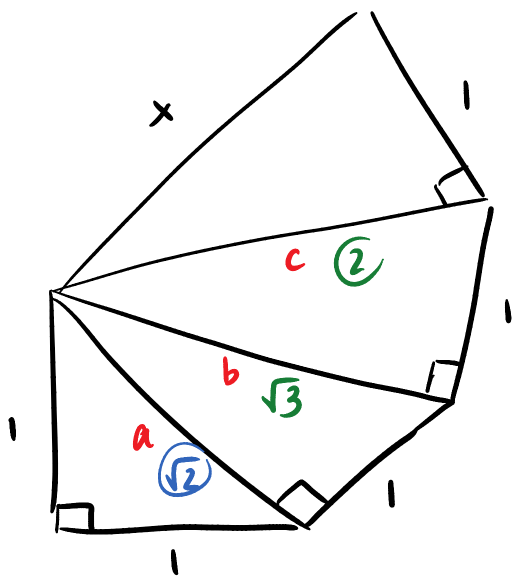


$$6^2 + 8^2 = x^2$$
$$100 = x^2$$
$$10 = x$$

$$6^2 = y \cdot 10$$
$$36 = 10y$$
$$3.6 = y$$

$$CD^2 = 3.6 \cdot 6.4$$
$$\sqrt{CD^2} = \sqrt{23.04}$$
$$\boxed{CD = 48}$$

#17



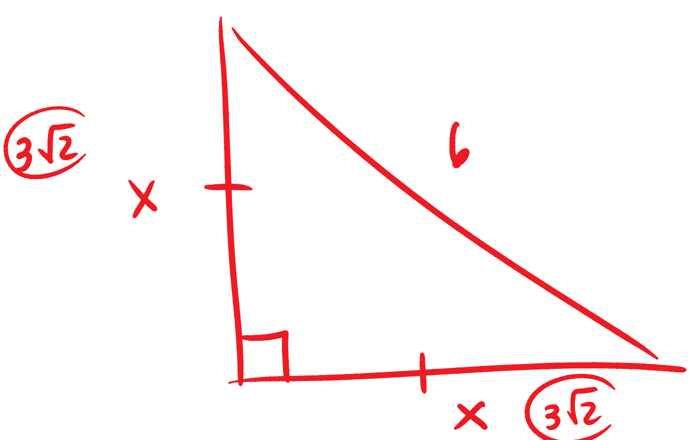
$$1^2 + 1^2 = a^2$$
$$2 = a^2$$
$$\sqrt{2} = a$$

$$1^2 + (\sqrt{2})^2 = b^2$$
$$1 + 2 = b^2$$
$$\sqrt{3} = b$$

$$1^2 + (\sqrt{3})^2 = c^2$$
$$1 + 3 = c^2$$
$$4 = c^2$$
$$2 = c$$

$$1^2 + 2^2 = x^2$$
$$1 + 4 = x^2$$
$$5 = x^2$$
$$\sqrt{5} = x$$

#20 Find the perimeter of an isosceles right triangle with a 6-cm hypotenuse



$$x^2 + x^2 = 36$$
$$2x^2 = 36$$
$$x^2 = 18$$
$$x = \sqrt{9.2}$$
$$x = 3\sqrt{2}$$

$$3\sqrt{2} + 3\sqrt{2} + 6$$
$$\boxed{6\sqrt{2} + 6 \text{ cm}}$$