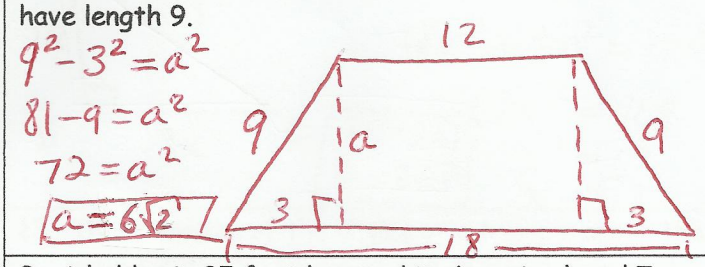
KEY

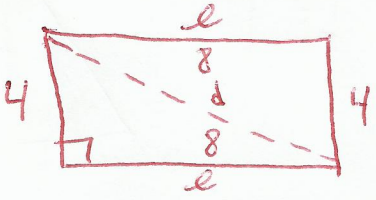
Right Triangle Practice

1. Find the length of the altitude of an isosceles trapezoid whose bases are 12 and 18 and whose legs have length 9.



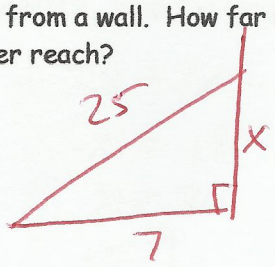
$9^2-3^2=a^2$
$81-9=a^2$
$72=a^2$
$a=6\sqrt{2}$

2. Find the length of a diagonal of a rectangle whose perimeter is 20 in. and width is 4 in.



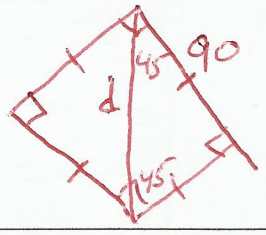
$2\ell+4=20$
$2\ell=16$
$\ell=8$
$4^2+8^2=d^2$
$16+64=d^2$
$d^2=80$
$d=4\sqrt{5}$

3. A ladder is 25 feet long and its base is placed 7 feet from a wall. How far up the wall does the ladder reach?



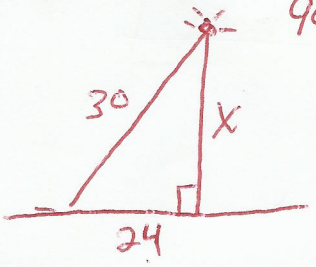
$25^2-7^2=x^2$
$625-49=x^2$
$x^2=576$
$x=24$

4. A baseball diamond is a square 90 feet on a side. What is the distance from home plate to second base?



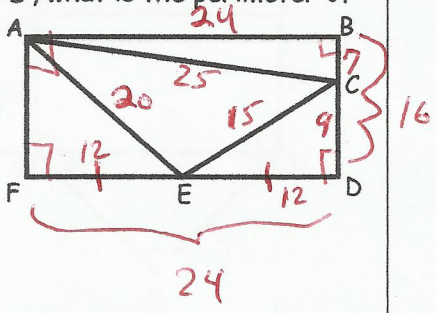
$90\sqrt{2}$ ft. or 127.3 ft.

5. A wire 30 feet long was fastened to the top of a telegraph pole and made secure to a stake in the ground 24 feet from the foot of the pole. Find the height of the pole.



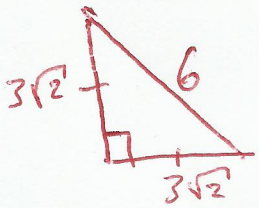
$30^2-24^2=x^2$
$900-576=x^2$
$324=x^2$
$x=18$

6. A piece broke off rectangle ABDF, leaving trapezoid ACDF. If $\overline{BD}=16$, $BC=7$ $FD=24$, and E is the midpoint of $\overline{FD}$, what is the perimeter of $\triangle ACE$?



$20+25+15$
60

7. Find the perimeter of an isosceles right triangle with a 6 cm. hypotenuse.



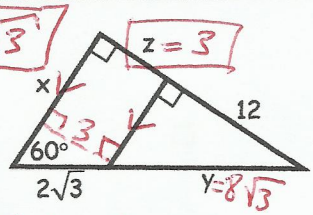
$(6\sqrt{2}+6)$ cm

8. The perimeters of two 30-60-90 triangles are in the ratio of 1:2. If the length of the hypotenuse of the larger triangle is 20 cm., find the length of the longer leg of the smaller triangle.

1 : 2

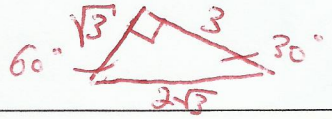
$4\sqrt{3}=10$
$4=\frac{10\sqrt{3}}{3}$

9. Find x, y, and z.

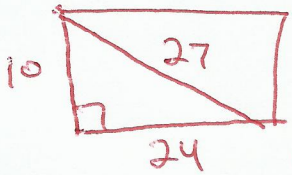


$x=5\sqrt{3}$
$z=3$
$y=8\sqrt{3}$

$\frac{3}{12}=\frac{2\sqrt{3}}{y}$
$3y=24\sqrt{3}$
$y=8\sqrt{3}$

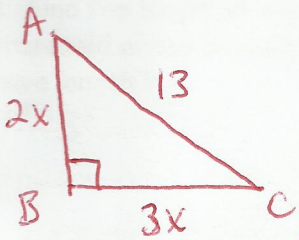


10. Is it possible to make an umbrella which is 27 inc. long lie flat on the bottom of a suitcase whose dimensions are 24 in. x 10 in. x 4 in.?



$10^2+24^2=27^2$
$676<729$
NO

11. In $\triangle ABC$, angle B is a right angle. AB:BC = 2:3. If AC = 13, find AB and BC.



$(2x)^2 + (3x)^2 = 13^2$

$4x^2 + 9x^2 = 13^2$

$13x^2 = 169$

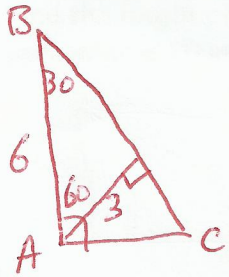
$x^2 = 13$

$x = \sqrt{13}$

$AB = 2\sqrt{13}$

$BC = 3\sqrt{13}$

12. In $\triangle ABC$, $m\angle B = 30$ and AB = 6. Find the length of the altitude $\overline{AD}$ upon side $\overline{BC}$.



3

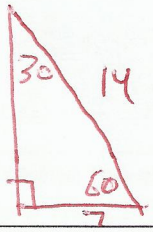
13. The measures of the angles of a triangle are in the ratio 1:2:3. The length of the shortest side of the triangle is 7. Find the length of the longest side.

$x + 2x + 3x = 180$

$6x = 180$

$x = 30$

14

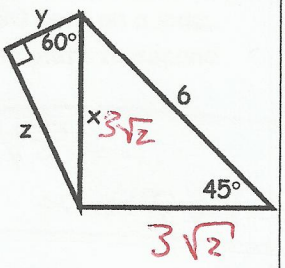


14. Find lengths x, y, and z.

$x = 3\sqrt{2}$

$y = \frac{3\sqrt{2}}{2}$

$z = \frac{3\sqrt{6}}{2}$



15. Find the perimeter of hexagon RSTUVW.

$26 + 8\sqrt{2} + 6\sqrt{3}$