

GEOM. REVIEW FOR PYTH. THM. TEST (CONTINUED)

KEY

FIND THE INDICATED LENGTHS. SHOW YOUR WORK.

⑬

$BC = 6$, $BD = 12$

$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + (3\sqrt{5})^2 &= 9^2 \\
 a^2 + 45 &= 81 \\
 \underline{-45} \quad \underline{-45} \\
 a^2 &= 36 \\
 \boxed{a = 6}
 \end{aligned}$$

⑭ SQUARE WITH AREA = 50

DIAGONAL XZ = 10

$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 \sqrt{50}^2 + \sqrt{50}^2 &= c^2 \\
 50 + 50 &= c^2 \\
 100 &= c^2 \\
 \boxed{10 = c}
 \end{aligned}$$

⑮

$QR = 8$, $RS = 16$

$$\begin{aligned}
 a^2 + b^2 &= c^2 & a^2 + b^2 &= c^2 \\
 a^2 + 12^2 &= (2\sqrt{52})^2 & a^2 + 12^2 &= 20^2 \\
 a^2 + 144 &= 208 & a^2 + 144 &= 400 \\
 \underline{-144} \quad \underline{-144} & & \underline{-144} \quad \underline{-144} & \\
 a^2 &= 64 & a^2 &= 256 \\
 \boxed{a = 8} & & \boxed{a = 16} &
 \end{aligned}$$

WRITE AN EQUATION AND SOLVE FOR X. SHOW YOUR WORK NEATLY! THEN FIND ALL TRIANGLE SIDES.

⑯

$$\begin{aligned}
 5^2 + (x+8)^2 &= 13^2 \\
 25 + x^2 + 16x + 64 &= 169 \\
 x^2 + 16x + 89 &= 169 \\
 \underline{-169} \quad \underline{-169} \\
 x^2 + 16x - 80 &= 0 \\
 (x+20)(x-4) &= 0 \\
 x = -20 \quad \boxed{x = 4}
 \end{aligned}$$

$x = 4$	CHECK:
$a = 5$	25
$b = 4+8 = 12$	144
$c = 13$	$169 \checkmark$

⑰

$$\begin{aligned}
 (x-1)^2 + 12^2 &= (x+5)^2 \\
 x^2 - 2x + 1 + 144 &= x^2 + 10x + 25 \\
 x^2 - 2x + 145 &= x^2 + 10x + 25 \\
 \underline{+2x} \quad \underline{+2x} & \\
 145 &= 12x + 25 \\
 \underline{-25} \quad \underline{-25} & \\
 120 &= 12x \\
 \boxed{10 = x}
 \end{aligned}$$

$x = 10$	CHECK:
$a = 10-1 = 9$	81
$b = 12$	144
$c = 10+5 = 15$	$225 \checkmark$

⑱

$$\begin{aligned}
 (x-5)^2 + (x+2)^2 &= (x+4)^2 \\
 \vdots & \\
 2x^2 - 6x + 29 &= x^2 + 8x + 16 \\
 \underline{-x^2 - 8x - 16} \quad \underline{-x^2 - 8x - 16} & \\
 x^2 - 14x + 13 &= 0 \\
 (x-13)(x-1) &= 0 \\
 \boxed{x = 13} \quad x \neq 1
 \end{aligned}$$

$x = 13$	CHECK:
$a = 13-5 = 8$	64
$b = 13+2 = 15$	225
$c = 13+4 = 17$	$289 \checkmark$

CLASSIFY EACH TRIANGLE AS RIGHT, ACUTE OR OBTUSE. SHOW YOUR WORK.

① 6, 9, 12 OBTUSE

② 8, $\sqrt{39}$, 5 RIGHT

③ $5\sqrt{11}$, 25, 30 RIGHT

④ $3\sqrt{5}$, $7\sqrt{2}$, $6\sqrt{3}$ ACUTE

① $6^2 + 9^2 < 12^2$
 $36 + 81 < 144$
 $117 < 144$

② $5^2 + (\sqrt{39})^2 = 8^2$
 $25 + 39 = 64$

② $(5\sqrt{11})^2 + 25^2 = 30^2$
 $275 + 625 = 900$
 $900 = 900$

③ $(3\sqrt{5})^2 + (7\sqrt{2})^2 > (6\sqrt{3})^2$
 $45 + 98 > 108$
 $143 > 108$

* BRING YOUR OWN CALCULATOR! * 😊