Name _____   Date _____

Use Pythagorean Theorem to classify each triangle as acute, right, or obtuse, given its side measurements.

1. 18, 24, 30 $18^2 + 24^2 \overset{?}{=} 30^2$ $324 + 576 \overset{?}{=} 900$ $900 = 900$ RT △	2. 16, 34, 30 $16^2 + 30^2 \overset{?}{=} 34^2$ $256 + 900 \overset{?}{=} 1156$ RT △
3. 20, 30, 40 $20^2 + 30^2 \overset{?}{=} 40^2$ $400 + 900 \overset{?}{=} 1600$ $1300 \overset{?}{=} 1600$ OBTUSE △	4. 50, 75, 85 $50^2 + 75^2 \overset{?}{=} 85^2$ $2500 + 5625$ $8125 \overset{?}{=} 7225$ ACUTE △
5. 15, 20, 24 $15^2 + 20^2 \overset{?}{=} 24^2$ $225 + 400 \qquad 576$ Acute △	6. 24, 26, 10 $10^2 + 24^2 \overset{?}{=} 26^2$ $100 + 576 \qquad 676$ RT △
7. 24, 10, 30 $10^2 + 24^2 \overset{?}{=} 30^2$ $100 + 576 = 900$ OBTUSE △	8. 5, 12, 13 $5^2 + 12^2 \overset{?}{=} 13^2$ RT △
9. 2, 6, $2\sqrt{10}$ $2^2 + 6^2 \overset{?}{=} (2\sqrt{10})^2$ $4 + 36 \overset{?}{=} 40$ RT △	10. 8, 12, $10\sqrt{2}$ $8^2 + 12^2 \overset{?}{=} (10\sqrt{2})^2$ $64 + 144 = 200$ ACUTE △
11. $5\sqrt{2}$, 10, $3\sqrt{5}$ $(5\sqrt{2})^2 + (3\sqrt{5})^2 \overset{?}{=} 10^2$ $50 + 45 \overset{?}{=} 100$ OBTUSE △	12. $3\sqrt{5}$, $4\sqrt{2}$, 8 $(3\sqrt{5})^2 + (4\sqrt{2})^2 \overset{?}{=} 8^2$ $45 + 32 \qquad 64$ ACUTE △

Use your knowledge about triangles to determine the values of each variable.

E is the midpoint of $\overline{AC}$. D is the midpoint of $\overline{BC}$. $\triangle ABE$ is isosceles having $\angle AEB$ as its vertex angle. Round to the nearest tenth if necessary.

A

6x - 2 w

30

E

3y - 8 w

2w 4x + 6 w

B

16.1

z + 5 D

16.1 C
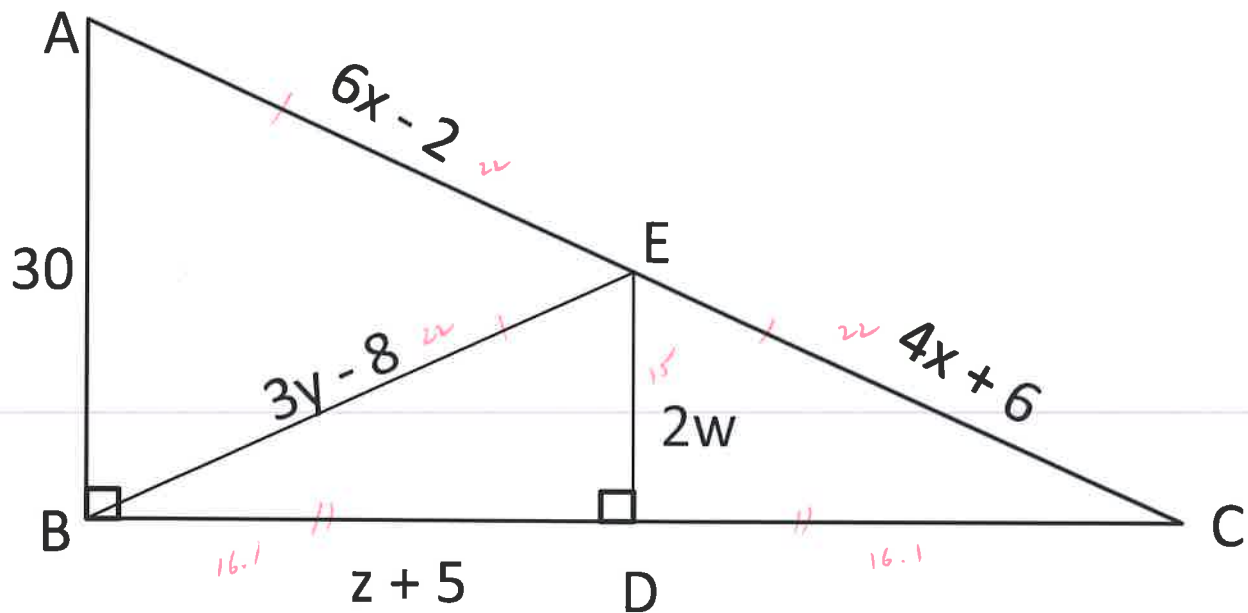
w = 7.5	x = 4	y = 10	z = 11.1

$6x - 2 = 4x + 6$
$2x = 8$
$x = 4$

$3y - 8 = 22$
$3y = 30$
$y = 10$

30 44
?
? = 32.2
$2(z + 5) = 32.2$
$2z + 10 = 32.2$
$2z = 22.2$
$z = 11.1$

2w
16.1
$(2w)^2 + (16.1)^2 = 22^2$
$4w^2 + 259.21 = 484$
$4w^2 = 224.78$
$w^2 = 56.2$
$w = 7.5$