Chapter 10 Pre-Algebra Practice Test **Name** Answer Key

Name all of the sets of numbers to which each real number belongs. Let R = real numbers, Ra = rational numbers, Ir = irrational numbers, I = integers, W = whole numbers, and C = counting numbers

1. $\frac{1}{9}$ R, Ra

2. $-\sqrt{16}$ R, Ra, I

3. 0.123242526… R, Ir

Solve each equation Estimate to the nearest whole number if necessary. Show work!

4. $\sqrt{x^2} = \sqrt{189}$ (13, 14)

$\boxed{x \approx \pm 14}$

5. $\sqrt{90} = \sqrt{y^2}$ (81, 100)

$\boxed{\pm 9 = y}$

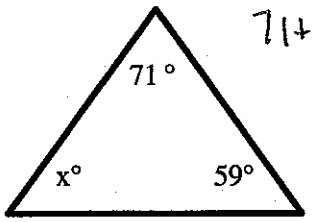
6. $\frac{576}{4} = \frac{4x^2}{4}$

$\sqrt{144} = \sqrt{x^2}$

$\boxed{\pm 12 = x}$

Fine the value of x in the triangle. Then classify the triangle as acute, right, or obtuse.

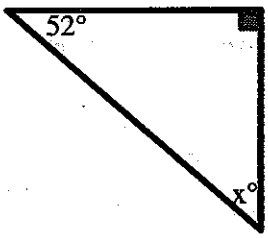
7.



$71 + 59 + x = 180$

$130 + x = 180$

$x = 50°$



$90 + 52 + x = 180$

$142 + x = 180$

$x = 38$

x = 50°

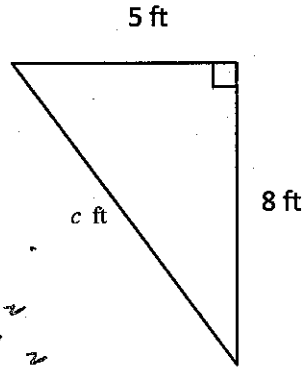
acute

x = 38°

right

Find the length of the missing side in each right triangle. Estimate to the nearest whole number if necessary. Show all steps. Label answers.

9.



$a^2 + b^2 = c^2$

$5^2 + 8^2 = c^2$

$25 + 64 = c^2$

$\sqrt{89} = \sqrt{c^2}$ (81, 100)

$\boxed{9 \approx c}$

10. $a = ??, b = 21, c = 32$

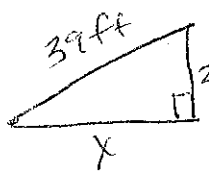
$a^2 + 21^2 = 32^2$

$a^2 + 441 = 1024$

$\sqrt{a^2} = \sqrt{583}$ (529, 576)

$\boxed{a \approx 24}$

11. A string is attached to a kite.The kite is 28 feet off the ground. The string is 39 feet long. If the kite drops straight down, how far will you have to walk to get it? **(draw a picture first-1 pt for accuracy)**



$c^2 = a^2 + b^2$

$39^2 = 28^2 + b^2$

$1521 = 784 + b^2$

$\sqrt{737} = \sqrt{b^2}$

$\boxed{27.1 \text{ feet} = b}$

Given the lengths of the sides, is the following a right triangle? Show your work.

12. 9 in, 12 in, 15 in

$9^2 + 12^2 = 15^2$

$81 + 144 = 225$

$225 = 225$

$\boxed{\text{YES}}$

13. 16 in, 22 in, 24 in

$16^2 + 22^2 = 24^2$

$256 + 484 = 576$

$740 \neq 576$

$\boxed{\text{NO}}$

Find the distance between the pair of points. Estimate to the nearest whole number, if necessary. Show all steps.

14. A (3, -4) B (1, 3)

$\overline{AB} = \sqrt{(3-1)^2 + (-4+3)^2}$

$\overline{AB} = \sqrt{2^2 + (-1)^2}$

$\overline{AB} = \sqrt{4+49}$

$\overline{AB} = \sqrt{53}$

$\boxed{\overline{AB} \approx 7}$

15. Q (9, 4) R (7, 6)

$\overline{QR} = \sqrt{(9-7)^2 + (4-6)^2}$

$\overline{QR} = \sqrt{2^2 + (-2)^2}$

$\overline{QR} = \sqrt{4+4}$

$\overline{QR} = \sqrt{8}$

$\boxed{\overline{QR} \approx 3}$

17. $\triangle PQR$ has vertices A (-2, 4), B (5,2) aand C (3, 3). **1.** Find the length of each side. **2.** Classify the triangle by its sides. **3.** Find the perimeter of the triangle.

$\overline{AB} = \sqrt{(-2-5)^2 + (4-2)^2}$

$\overline{AB} = \sqrt{(-7)^2 + (2)^2}$

$\overline{AB} = \sqrt{49+4}$

$\overline{AB} = \sqrt{53} = \sqrt{53}$

$\overline{AB} = 7.3$

$\overline{AC} = \sqrt{(-2-3)^2 + (4-3)^2}$

$\overline{AC} = \sqrt{-5^2 + 1^2}$

$\overline{AC} = \sqrt{25+1}$

$\overline{AC} = \sqrt{26}$

$\overline{AC} = 5.1$

$\overline{BC} = \sqrt{(5-3)^2 + (2-3)^2}$

$\overline{BC} = \sqrt{2^2 + (-1)^2}$

$\overline{BC} = \sqrt{4+1}$

$\overline{BC} = \sqrt{5}$

$\overline{BC} = 2.2$

(2) Scalene

(3) $P = 7.3 + 5.1 + 2.2$

$\boxed{P = 14.6}$