Name: Key

Grade 8

Unit 1 – Square Roots and Pythagorean Theorem Test REVIEW

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

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

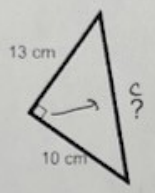
Show all work for the following to obtain full value

1. What does it mean to have an odd number of factors?

Odd number of factor means the number is a perfect square number

2. Find the length of the indicated side in each triangle (SHOW WORK)

(a)



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

$c^2 = (10cm)^2 + (13cm)^2$

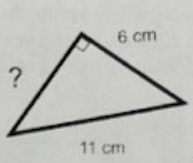
$c^2 = 100cm^2 + 169cm^2$

$c^2 = 269cm^2$

$\sqrt{c^2} = \sqrt{269cm^2}$

$c \approx 16.4cm$

(b)



$a^2 = c^2 - b^2$

$a^2 = (11cm)^2 - (6cm)^2$

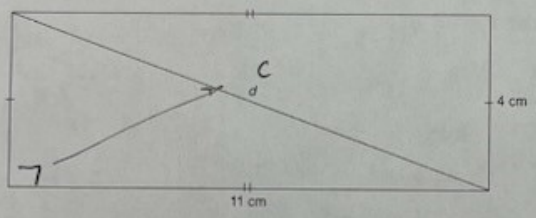
$a^2 = 121cm^2 - 36cm^2$

$a^2 = 85cm^2$

$\sqrt{a^2} = \sqrt{85cm^2}$

$a \approx 9.2cm$

3. Find the length of the diagonal, d, in this rectangle.



$c = d$

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

$c^2 = (11cm)^2 + (4cm)^2$

$c^2 = 121cm^2 + 16cm^2$

$c^2 = 137cm^2$

$\sqrt{c^2} = \sqrt{137cm^2}$

$c \approx 11.7cm$ $d = 11.7cm$

4. Simplify.

a) square 49 $= 49^2 = 2401$

b) square root of 36 $= \sqrt{36} = 6$

c) $(\sqrt{35})^2 = 35$

5. Estimate the following (make sure to show work)

(a) $\sqrt{190}$

$\sqrt{169}$ $\sqrt{196}$

13 14

≈ 13.7

(b) $\sqrt{20}$

$\sqrt{16}$ $\sqrt{25}$

4 5

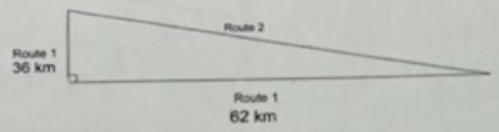
≈ 4.4

6. Determine whether a triangle with each set of side lengths is a right triangle. Justify your answers. (Show work)
8cm, 9 cm, and 11 cm

c^2 | $a^2 + b^2$
11^2 | $8^2 + 9^2$
121 | $64 + 81$
$\neq$ | 145

Not Same so Not Right Δ

7. A trucker has two companies to choose to work at.
Company A follows route 1 and pays $15/km
Company B follows route 2 and pays $19/km



a) What is the trucker's pay if he goes with company A? (Hint: Rout 1 has 2 parts)

Route 1 = 36 km + 62 km
= 98km
× $15/km
$1470 for Route 1 cost

b) What is the trucker's pay if he goes with company B?
(Note: this requires 2 steps)

Route 2 is "c"

$c^2 = a^2 + b^2$
$c^2 = (36km)^2 + (62km)^2$
$c^2 = 1296 km^2 + 3844 km^2$
$c^2 = 5140 km^2$
$\sqrt{c^2} = \sqrt{5140 km^2}$
$c \approx 71.7 km$

71.7km
× $19/km
$1362.30
for Route 2

c) Which is the better option? Explain

You get paid more money if you work for Company A.