



WARM UP GRADE 8

WEDNESDAY, FEB. 21



The following lengths are the sides of a triangle, determine if it is a right triangle?

^c
40cm , 24 cm, 32 cm

$$\begin{array}{l} c^2 \\ (40\text{cm})^2 \\ 1600\text{cm}^2 \end{array} \left. \vphantom{\begin{array}{l} c^2 \\ (40\text{cm})^2 \\ 1600\text{cm}^2 \end{array}} \right\} \begin{array}{l} a^2 + b^2 \\ (24\text{cm})^2 + (32\text{cm})^2 \\ 576\text{cm}^2 + 1024\text{cm}^2 \\ \underline{\hspace{1.5cm}} \\ 1600\text{cm}^2 \end{array}$$

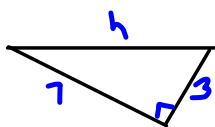
Sam so
Right Δ

Page 34-35

#7(a,b), 8(a),9(a), 10

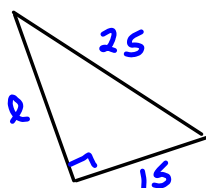
Page 34-357(a,b),8(a,b), 9(a), 10, 13(a,b)

7a)



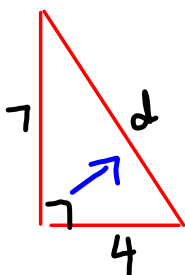
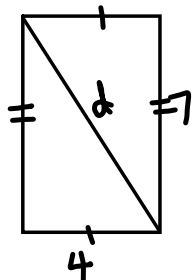
$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 7^2 + 3^2 \\c^2 &= 49 + 9 \\c^2 &= 58 \\\sqrt{c^2} &= \sqrt{58} \\c &= 7.6\end{aligned}$$

b)



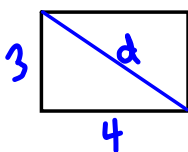
$$\begin{aligned}c^2 &= a^2 + b^2 \\25^2 &= a^2 + 15^2 \\625 &= a^2 + 225 \\625 - 225 &= a^2 + 225 - 225 \\400 &= a^2 \\\sqrt{400} &= \sqrt{a^2} \\20 &= a\end{aligned}$$

8



$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 7^2 + 4^2 \\c^2 &= 49 + 16 \\c^2 &= 65 \\\sqrt{c^2} &= \sqrt{65} \\c &= 8.1\end{aligned}$$

9a)



$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 3^2 + 4^2 \\c^2 &= 9 + 16 \\c^2 &= 25 \\\sqrt{c^2} &= \sqrt{25} \\c &= 5\end{aligned}$$

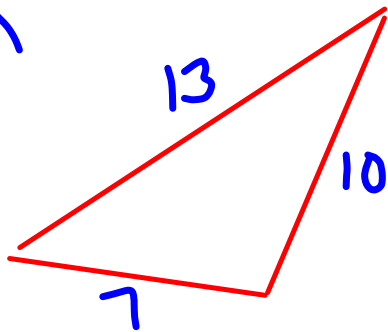
10.
If you know the side lengths of a right triangle the hypotenuse will be the largest number since it is always the longest side.

Homework Solutions Page 43 #4(a,b)

#6 (a,c,f)

#7(a,f)

#8

4.
a)

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

$$13^2$$

$$10^2 + 7^2$$

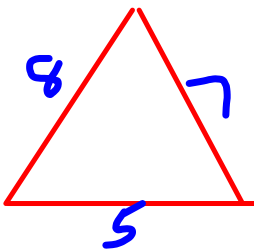
$$100 + 49$$

$$169$$

$$149$$

$169 \neq 149$, so not a right triangle.

b)



$$\text{Does } c^2 = a^2 + b^2$$

$$8^2$$

$$5^2 + 7^2$$

$$64$$

$$25 + 49$$

$$74$$

$64 \neq 74$, so not a right triangle.

Homework pg. 43 # 6-12 and Reflect

#4(a,b)

Homework Solutions

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

#6 (a,c,f)

☺ a) 16, 30, 34

$$\begin{array}{r} 34^2 \\ 1156 \end{array} \quad \begin{array}{r} 16^2 + 30^2 \\ 256 + 900 \\ 1156 \end{array}$$

#7(a,f)

#8 b) 12^2

$$\begin{array}{r} 12^2 \\ 144 \end{array} \quad \begin{array}{r} 8^2 + 10^2 \\ 64 + 100 \\ 164 \end{array}$$

They are not equal so it is not a right triangle.

They are equal so it is a right triangle.

d) 53^2

$$\begin{array}{r} 53^2 \\ 2809 \end{array} \quad \begin{array}{r} 28^2 + 45^2 \\ 784 + 2025 \\ 2809 \end{array}$$

They are equal so it is a right triangle.

☺ c) 25^2

$$\begin{array}{r} 25^2 \\ 625 \end{array} \quad \begin{array}{r} 20^2 + 15^2 \\ 400 + 225 \\ 625 \end{array}$$

They are equal so it is a right triangle.

They are equal so it is a right triangle.

They are not equal so it is not a right triangle.

e) 17^2

$$\begin{array}{r} 17^2 \\ 289 \end{array} \quad \begin{array}{r} 14^2 + 5^2 \\ 196 + 25 \\ 221 \end{array}$$

They are not equal so it is not a right triangle.

☺ f) 30^2

$$\begin{array}{r} 30^2 \\ 900 \end{array} \quad \begin{array}{r} 9^2 + 20^2 \\ 81 + 400 \\ 481 \end{array}$$

They are not equal so it is not a right triangle.

g) 15^2

$$\begin{array}{r} 15^2 \\ 225 \end{array} \quad \begin{array}{r} 9^2 + 9^2 \\ 81 + 81 \\ 162 \end{array}$$

They are not equal so it is not a right triangle.

h) 26^2

$$\begin{array}{r} 26^2 \\ 676 \end{array} \quad \begin{array}{r} 10^2 + 24^2 \\ 100 + 576 \\ 676 \end{array}$$

They are equal so it is a right triangle.

Homework Solutions #4(a,b)

7. Does $c^2 = a^2 + b^2$

a) 16, 30, 34
 $34^2 = 1156$
 $16^2 + 30^2 = 256 + 900 = 1156$

They are equal so it is a Pythagorean triple.

c) 39, 15, 36
 $39^2 = 1521$
 $15^2 + 36^2 = 225 + 1296 = 1521$

They are equal so it is a Pythagorean triple.

e) 35, 38, 9
 $35^2 = 1225$
 $38^2 + 9^2 = 900 + 81 = 981$

They are not equal so it is not a Pythagorean triple.

b) 9, 8, 10
 $9^2 = 81$
 $6^2 + 8^2 = 36 + 64 = 100$

They are not equal so it is not a Pythagorean triple.

d) 65, 63, 16
 $65^2 = 4225$
 $63^2 + 16^2 = 3969 + 256 = 4225$

They are equal so it is a Pythagorean triple.

They are equal so it is a Pythagorean triple.
 They are not equal so it is not a Pythagorean triple.

f) 58, 40, 42
 $58^2 = 3364$
 $40^2 + 42^2 = 1600 + 1764 = 3364$

They are equal so it is a Pythagorean triple.

8. 15, 12, 9
 Is $15^2 = 12^2 + 9^2$?
 $225 = 144 + 81 = 225$

They are equal, so the sides form a right angle.

9. 6, 7, $\sqrt{13}$
 $7^2 = 6^2 + (\sqrt{13})^2$?
 $49 = 36 + 13 = 49$

$\sqrt{9} = 3$ $\sqrt{13}$ $\sqrt{16} = 4$

Yes it is a right triangle.
 It is not a Pythagorean triple because one side is not a whole number.



Warm Up Grade 8

DAY 18 NOTES

Similar to test question



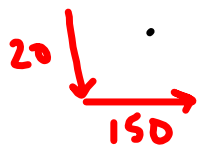
Applying Knowledge

1) Jack and Ted have competing paving companies. The school wants to hire the one of the companies to pave a path to school. They have two choices;

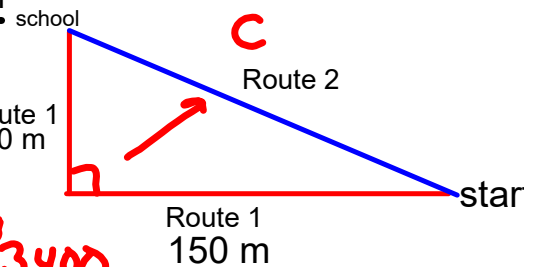
Ted travels along route 1 but charges \$20 per meter

Jack travels along route 2 but charges \$22 per meter

a) How much does Ted charge?



$$\begin{aligned} \text{Total Dist} &= 20\text{m} + 150\text{m} \\ &= 170\text{m} \\ &\times \$20 \\ &= \$3400 \end{aligned}$$



b) How much will Jack Charge? (Requires more work than part a)

$$\begin{aligned} c^2 &= a^2 + b^2 \\ c^2 &= (20\text{m})^2 + (150\text{m})^2 \\ c^2 &= 400\text{m}^2 + 22500\text{m}^2 \\ c^2 &= 22900\text{m}^2 \\ \sqrt{c^2} &= \sqrt{22900\text{m}^2} \\ c &= 151.3\text{m} \end{aligned}$$

$$\begin{aligned} \text{Cost R2} \\ 151.3\text{m} \\ \times \$22 \\ \hline \$3328 \end{aligned}$$

c) Who has the better deal for the school?

Route 2 is the better deal
Since it is cheaper.



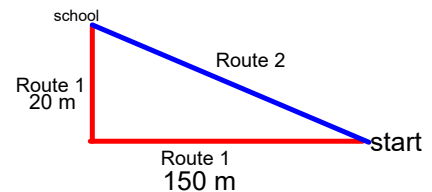
Warm Up Grade 8



1) Jack and Ted have competing paving companies. The school wants to hire the one of the companies to pave a path to school. They have two choices;

Ted travels along route 1 but charges \$20 per meter

Jack travels along route 2 but charges \$22 per meter



a) How much does Ted charge?

$$\begin{array}{r} 20 \text{ m} + 150 \text{ m} = 170 \text{ m} \\ \times \$20 \\ \hline \$3400 \end{array} \quad \text{Ted charges } \$3400$$

b) How much will Jack Charge? (Requires more work than part a)

Need to find route 2 ...THE Hypotenuse

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

$$c^2 = (150 \text{ m})^2 + (20 \text{ m})^2$$

$$c^2 = 22\,500 \text{ m}^2 + 400 \text{ m}^2$$

$$c^2 = 22\,900 \text{ m}^2$$

$$c = \sqrt{22\,900 \text{ m}^2}$$

$$c = 151.3 \text{ m}$$

$$151.3 \times \$22 = \$3328.60$$

Jack Charges
\$3328.60

c) Who has the better deal for the school?

Jack is the better deal. He charges \$71.40 cheaper.

$$\$3400 - \$3328.60 = \$71.40$$

Class/Homework

Page 44-45

#9, #10, #12(a), #14

Page 48-49

#2, #3, #4a, #5a

↓
'C' must be longest ^{Test} → opposite to 90°

Unit 1: Square Roots & Pythagorean Theorem

Tuesday, Feb. 27

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

$$\text{Ex) } (\sqrt{31})^2 = 31$$

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