Warm Up

Team M is having a party and Mr. Chute and Dr. P are in charge of getting the popcorn and cookies.

Mr. Chute spent $34.19 on 8 bags of popcorn and 3 containers of cookies. Dr. P spent $37.39 on 4 bags of popcorn and 7 containers of cookies.

How much does a bag of popcorn cost?

Let x = cost of a bag of popcorn

Let y = cost of pack of cookies

$$\begin{cases} 8x+3y=34.19 & \leftarrow \text{Mr. Chute} \\ 4x+7y=37.39 & \leftarrow \text{Dr. P} \end{cases}$$

$$8x+3y=34.19$$

$$2[4x+7y=37.39] \Rightarrow -\quad 8x+14y=74.78$$

use subtraction to eliminate the x variable

Questions from yesterday's work?

NAME _____ DATE _____ CLASS _____

Solving Two-Step Inequalities Word Problems

Directions: Select the correct inequality that represents each situation below, solve and write your answer using complete sentence(s).

1. T-Mobile has a family plan of four lines for $120 and additional lines are $10 each per month. If Jason wants to spend at most $175 per month on cell phone expenses, how many additional lines can he afford?

A) $120 + 10x \geq 175$

B) $120 + 10x \leq 175$

C) $120 - 10x \geq 175$

D) $120 - 10x \leq 175$

$120 + 10x \leq 175$
$-120 \quad -120$
$\frac{10x}{10} \leq \frac{55}{10}$
$x \leq 5.5$

Answer using complete sentence(s) Jason can afford 5 additional lines.

2. Jannie has a budget of $240 to spend on jeans and shirts. She spends $95 on jeans. If the cost of each shirt is $22.50, how many can she buy without going over the budget?

A) $22.50x + 95 \leq 240$

B) $95x + 22.50 \leq 240$

C) $22.50x + 95 \geq 240$

D) $95x + 22.50 \geq 240$

$22.5x + 95 \leq 240$
$-95 \quad -95$
$22.5x \leq 145$
$x \leq 6.44$

Answer using complete sentence(s) Jannie can buy 6 shirts.

3. Blake made an 87 on the first semester of Algebra 1. What score can he make on the second semester if he wants his average to be more than a 90 for both semesters?

A) $87 + x > 90$

B) $87 + 2x < 90$

C) $\frac{87 + x}{2} > 90$

D) $\frac{87 + 2x}{2} < 90$

$2\left[\frac{87+x}{2} > 90\right]$
$87 + x > 180$
$-87 \quad -87$
$x > 93$

Answer using complete sentence(s) Blake needs to earn at least a 93 in the second semester.

4. Seventy-nine less than five times a number is at most 241. What is the maximum value of the number?

A) $79 - 5x \geq 241$

B) $5x - 79 \geq 241$

C) $5x - 79 \leq 241$

D) $79 - 5x \leq 241$

$5x - 79 \leq 241$
$+79 \quad +79$
$\frac{5x}{5} \leq \frac{320}{5}$
$x \leq 64$

Answer using complete sentence(s) The maximum the number can be is 64.

5. Tao wants to make at least an 85 average on his five English exams. What grade can he score on the fifth test if the average of the first four tests was a 92?

A) $\frac{4(92) + x}{5} \geq 85$

B) $92 + 4x < 85$

C) $\frac{92 + x}{2} \leq 85$

D) $\frac{92 + x}{2} \geq 85$

$5\left[\frac{4(92)+x}{5} \geq 85\right]$
$4(92) + x \geq 425$
$368 + x \geq 425$
$-368 \quad -368$
$x \geq 57$

Answer using complete sentence(s) Tao needs to score at least a 57.

6. Six more than twice a number is no more than -82. What could be the value of the number?

A) $6 + 2x \leq -82$

B) $6 + 2x \geq -82$

C) $2x + 6 \leq -82$

D) $2x + 6 \geq -82$

$2x + 6 \leq -82$
$-6 \quad -6$
$\frac{2x}{2} \leq \frac{-88}{2}$
$x \leq -44$

Answer using complete sentence(s) The number could be -44.

7. An AC technician charges an inspection fee of $125 plus $55 for every labor hour. If Julie has a budget of $399, what is the maximum number of hours can she hire the AC technician?

A) $125x + 55 \geq 399$

B) $125 + 55x \leq 399$

C) $125x - 55 \geq 399$

D) $125 - 55x \leq 399$

$125 + 55x \leq 399$
$-125 \quad -125$
$\frac{55x}{55} \leq \frac{274}{55}$
$x \leq 4.98$

Answer using complete sentence(s) Julie can hire the technician for 4 hours if you can't hire for parts of hours

8. A certain music club charges an annual membership fee of $50, in return, its members will be able to buy and download songs at a very low cost of 13 cents each. How many songs can Tyna buy if her annual music budget is less than $125?

$50+0.13x < 125$
$-50 \quad -50$
$0.13x < 75$
$\frac{0.13x}{0.13} < \frac{75}{0.13}$
$x < 576.9$

A) $50 + 0.13x \geq 125$

B) $50 + 0.13x < 125$

C) $50 + 13x < 125$

D) $50 + 13x \geq 125$

Answer using complete sentence(s) Tanya can buy 576 songs.

9. The larger number is at least 8 less than three times the smaller number. What could be the value of the smaller number if the larger one is 592?

$3x - 8 \leq 592$
$+8 \quad +8$
$\frac{3x}{3} \leq \frac{600}{3}$
$x \leq 200$

A) $3x - 8 \leq 592$

B) $3x - 8 \geq 592$

C) $(8 - 3)x \geq 592$

D) $8x - 3x \leq 592$

Answer using complete sentence(s) The smaller # is at most 200.

10. One-half the sum of a number and 254 is no less than 454. What is the minimum value of the number?

$2\left[\frac{x+254}{2} \geq 454\right]$
$x + 254 \geq 908$
$-254 \quad -254$
$x \geq 654$

A) $\frac{x + 254}{2} \geq 454$

B) $\frac{x}{2} + 254 < 454$

C) $254 + 8x \leq 454$

D) $x + \frac{254}{2} > 454$

Answer using complete sentence(s) The minimum value of the # is 654.

11. A certain cell phone company has a monthly base charge of $14.99 plus five cents per minute used. Dwaine's monthly budget for cell phone expenses is $62.75. How many minutes can he use without exceeding his budget?

$14.99 + 0.05x \leq 62.75$
$-14.99 \quad -14.99$
$\frac{0.05x}{0.05} \leq \frac{47.76}{0.05}$
$x \leq 955.2$

A) $14.99 + 0.5x \geq 62.75$

B) $14.99 + 0.5x \leq 62.75$

C) $14.99 + 0.05x \leq 62.75$

D) $14.99 + 0.05x \geq 62.75$

Answer using complete sentence(s) Dwaine can use up to 955 minutes

12. The distance between Jaimes and his destination is at most 850 miles. If he is driving at a speed of 70 mph and has traveled 150 miles, in how many hours can he expected to be at his destination, assuming that his speed will remain constant?

$850 \geq 150 + 70x$
$-150 \quad -150$
$\frac{700}{70} \geq \frac{70x}{70}$
$10 \geq x$

A) $850 \geq 150 + 70x$

B) $850 \leq 150 + 70x$

C) $850 \geq 150x + 70$

D) $850 \leq 150x + 70$

Answer using complete sentence(s): He should get there in less than 10 hrs.

13. The average price of a movie ticket in 20 years will be at least $6 less than seven-thirds of today's average ticket price. What could be the price of a movie ticket in 20 years if the current average price is $8.70?

$x \geq \frac{7}{3}(8.7) - 6$
$x \geq 14.30$

A) $20 \leq 6 - \frac{7}{3}x$

B) $20 \leq 8.7x - 6$

C) $x \geq 6 - \frac{7}{3}(8.7)$

D) $x \geq \frac{7}{3}(8.7) - 6$

Answer using complete sentence(s): A movie ticket will cost at least $14.30

14. The smaller number is no more than 10 less than four-thirds the value of the bigger number. If the smaller number is 200, what could be the value of the bigger number?

$200 \leq \frac{4}{3}x - 10$
$+10 \quad +10$
$\frac{3}{4}[210 \leq \frac{4}{3}x]$
$157.5 \leq x$

A) $200 \leq \frac{4}{3}x - 10$

B) $200 \geq \frac{4}{3}x - 10$

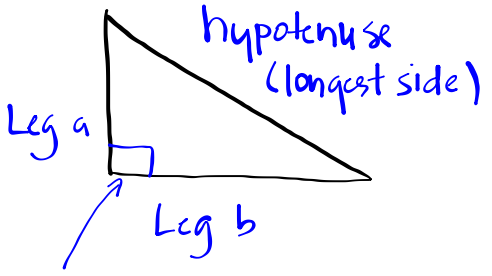
C) $200 \leq 10 - \frac{4}{3}x$

D) $200 \geq 10 - \frac{4}{3}x$

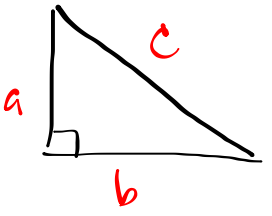
Answer using complete sentence(s): The bigger # must be 157.5 or larger.

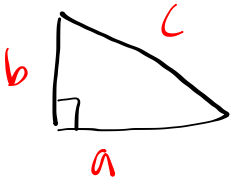
Quick Pythagorean Theorem Review

(What do you remember from Tuesday?)



Right Angle!



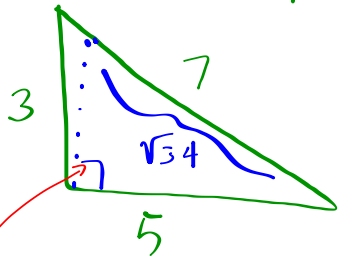


Hypotenuse is always "c"

Formula

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

Is this a right triangle?



Is this an acute or obtuse angle?

Use the Pythagorean Theorem

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

$$3^2+5^2 \stackrel{?}{=} 7^2$$

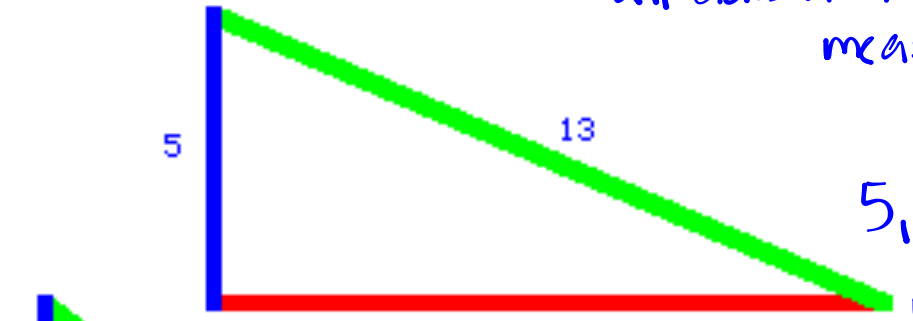
$$9+25 \stackrel{?}{=} 49$$

$$34 \neq 49$$

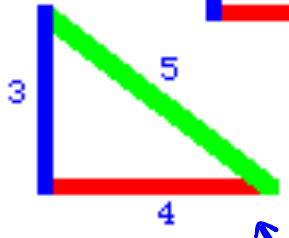
This is NOT a right triangle!

Pythagorean Triples

all sides are integer measures

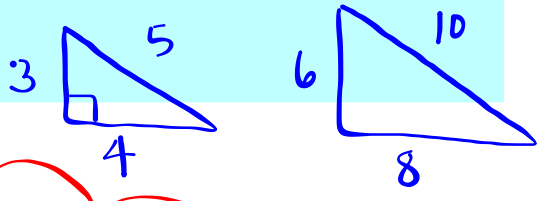


5, 12, 13 right triangle



3, 4, 5 Right triangle

If a 3, 4, 5 triangle is a right triangle, do you think a 6, 8, 10 triangle is also a right triangle?



Think about what you know about shrinking and stretching...

3, 4, 5

6, 8, 10

Other Right Triangles?

12, 16, 20

30, 40, 50

24, 32, 40

9, 12, 15

What Did Dr. Dripp Say to the Bleeding Kid Who Refused to Get Stitches?

Find the missing side length, if possible (some answers are rounded). Cross out the letter next to the correct answer. When you finish, the answer to the title question will remain.

For Exercises 1-8, refer to the diagram at the right.

1. $a = 6$, $b = 8$
   $c =$ _____

2. $a = 10$, $b = 7$
   $c =$ _____

3. $a = 15$, $b = 15$
   $c =$ _____

4. $a = 10$, $c = 26$
   $b =$ _____

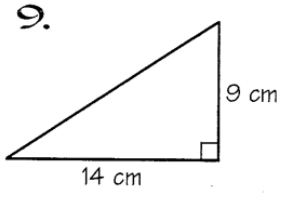
5. $b = 30$, $c = 50$
   $a =$ _____

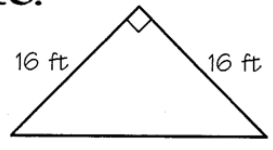
6. $a = 5$, $c = 12$
   $b =$ _____

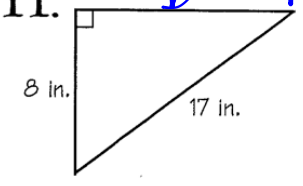
7. $b = 13$, $c = 20$
   $a =$ _____

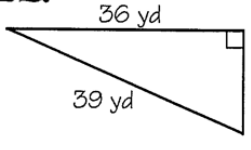
8. $a = 1.5$, $b = 2$
   $c =$ _____

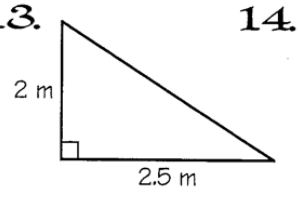
$a^2 + b^2 = c^2$
$10^2 + b^2 = 26$
$100 + b^2 = 676$
$-100 \quad -100$
$b^2 = 576$
$\sqrt{b^2} = \sqrt{576}$
$b = 24$

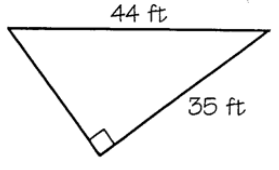
9. 

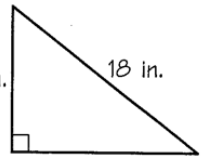
10. 

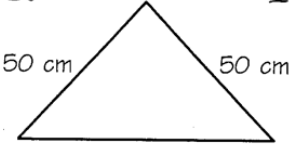
11. 

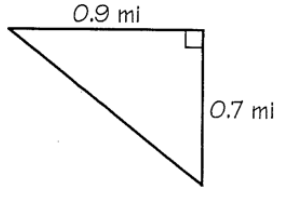
12. 

13. 

14. 

15. 

16. 

17. 

THSTOELLPFIT	Answers 1-8
	40
	12.2
	2.8
	10.9
	2.5
	42
	22.9
	24
	15.2
	11.5
	10
	21.2

ASOCUPTRBUERLED	Answers 9-17
	3.2 m
	17.4 cm
	22.6 ft
	16 yd
	14.2 in.
	24.5 ft
	15 in.
	not possible
	1.3 mi
	26.7 ft
	3.6 m
	1.1 mi
	16.6 cm
	14.6 in.
	15 yd