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Name: KEY Date:_____ Period: _____

Day 09 - Analyzing Numerical Data: Using Ratios

LB Student Activity Sheet 4: Ratios in the Media

For a rectangular shape such as a display screen, the longer side is called the width (***W***) and the shorter side is the height (***H***). The aspect ratio is ***W:H*** or ***W/H.***

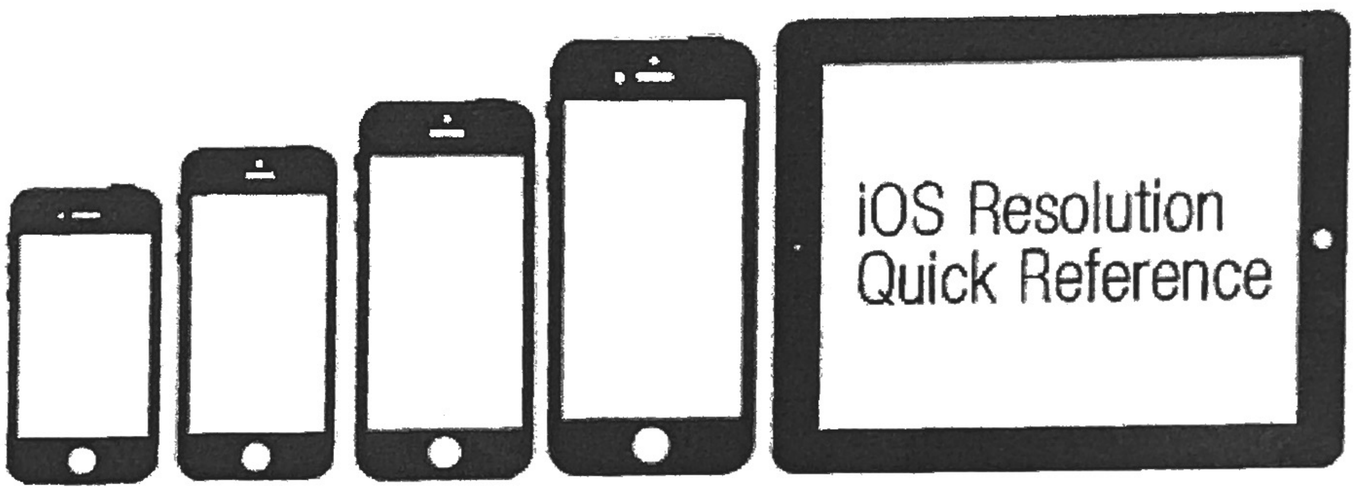
1. What is the approximate aspect ratio of the screen on your iPhone? Consider only the viewing screen, not the entire phone.

5:2 NOT EXACT BUT HUMAN ERROR.

Does your aspect ratio match what the stats say (or is it close)?

MY PHONE HAS A CASE WHICH COVERS SOME OF THE SCREEN.

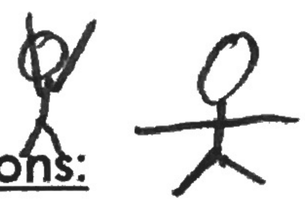
#CaboSolutions



Sizes	iPhone 4	iPhone 5	iPhone 6	iPhone 6+	iPad	iPad Retina
Devices	iPhone4, 4s, iPod Touch 4g	iPhone 5, 5C, 5S iPod Touch 5g	iPhone 6	iPhone 6+	iPad iPad 2 iPad Mini	iPad Air iPad Mini Retina
Resolution	960 x 640	1136 x 640	1334 x 750	1920 x 1080	1024 x 768	2048 x 1536
PPI	326 ppi	326 ppi	326 ppi	401 ppi	132 ppi	264 ppi (mini retina 326 ppi)
Aspect ratio	3:2	16:9	16:9	16:9	4:3	4:3

2. Now, test this yourself. Hold your arms out in front of you, move them horizontally to the side until you can no longer see them. Do the same moving your arms up and down. What do you notice?

PERIPHERAL VISION – WIDER THAN HEIGHT

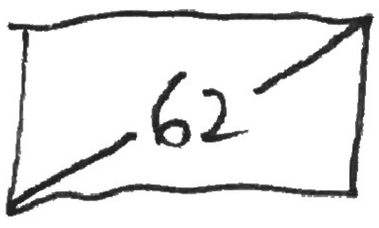


Televisions:

3. How do we describe the size of a television?

BY THE DIAGONAL (ALSO RECTANGULAR)

What does it mean to have a 62 inch television?



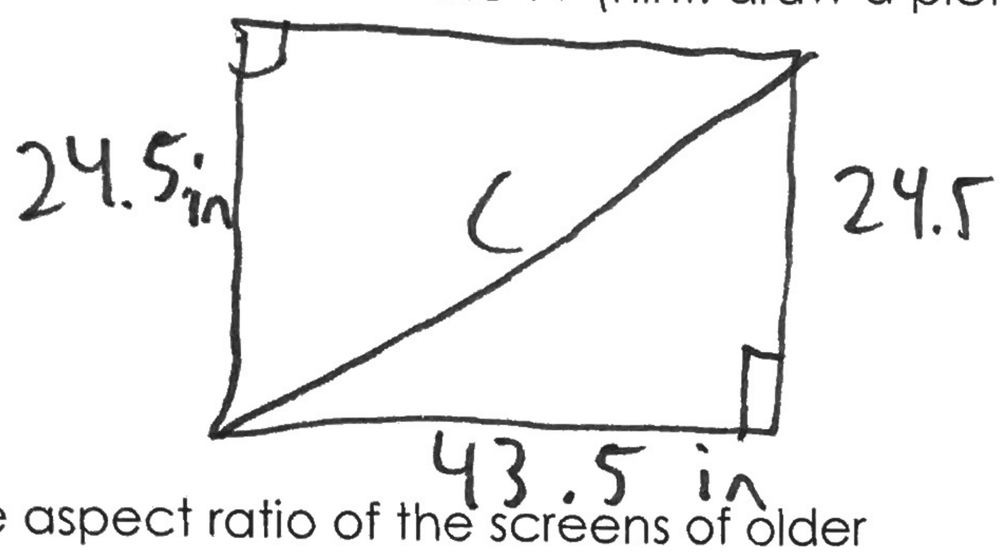
FROM ONE CORNER TO OPPOSITE CORNER MEASURES (SCREEN ONLY!) 62 in.

5. Consider a TV that is 43 ½ inches wide and 24 ½ inches tall.

a) What is the aspect ratio of this TV?

W : H → $\frac{W}{H}$ $\frac{43.5}{24.5} = \frac{87}{49}$

b) What is the size of the TV (hint: draw a picture)?



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

$43.5^2 + 24.5^2 = c^2$

$2492.5 = c^2$ ✓

$c = \pm\sqrt{2492.5} = 49.9$ in

The aspect ratio of the screens of older televisions is 4:3, while the aspect ratio of newer wide-screen televisions is 16:9.

6. Consider an older 25-inch television whose screen has an aspect ratio of 4:3. RATIO

a) What is the **width** of the TV?

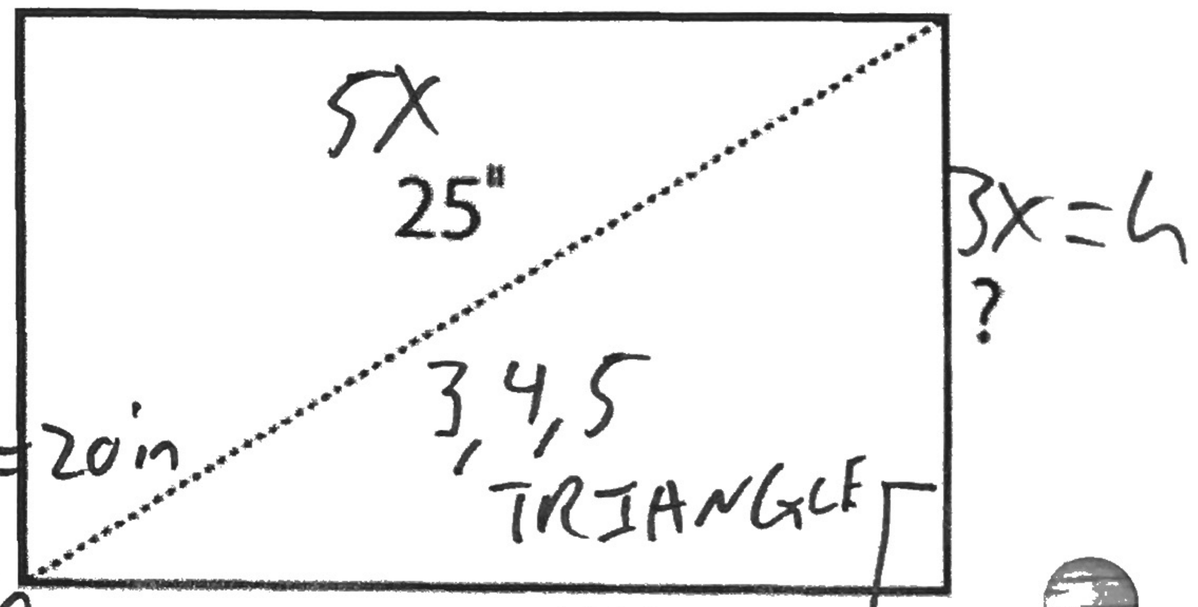
$\frac{5}{4} = \frac{25}{w}$ $5w = 100$ $w = 20$ in ← OR $4(5) = 20$ in

b) What is the **height** of the TV?

$\frac{5}{3} = \frac{25}{h}$ $5h = 75$ $h = 15$ ← OR $3(5) = 15$ in

c) What is the area of the **screen**?

AREA = L × W = 20(15) = 300 in²



$(4x)^2 + (3x)^2 = 25^2$

$16x^2 + 9x^2 = 625$

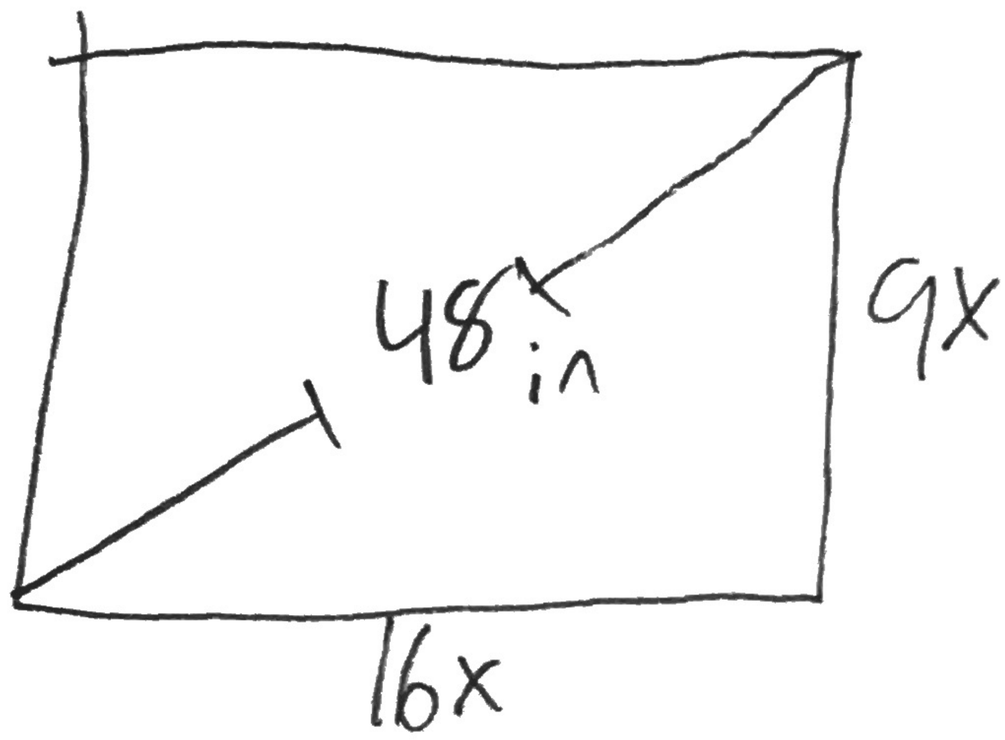
$25x^2 = 625$

$x^2 = 25$

$x = 5$

What problems are you trying to figure out?	
WIDTH, HEIGHT, AND AREA OF SCREEN	
What info do you already know about the problem?	**What info do you need about the problem?**
• RATIO. 4:3 • 25" DIAGONAL	• LENGTHS OF WIDTH AND HEIGHT

Work Space



7. Consider a newer 48 inch TV with an aspect ratio of 16:9.

a) What is the **width** of the TV?

$w = 16(2.615) = 41.84$

b) What is the **height** of the TV?

$h = 9(2.615) = 23.535$

c) What is the area of the **screen**?

$AREA = w \times h = (41.84)(23.535) \approx 984.70 \text{ in}^2$

$(16x)^2 + (9x)^2 = 48^2$

$256x^2 + 81x^2 = 2304$

$337x^2 = 2304$

$x^2 = \frac{2304}{337}$

$x = \sqrt{\frac{2304}{337}} \approx 2.615$