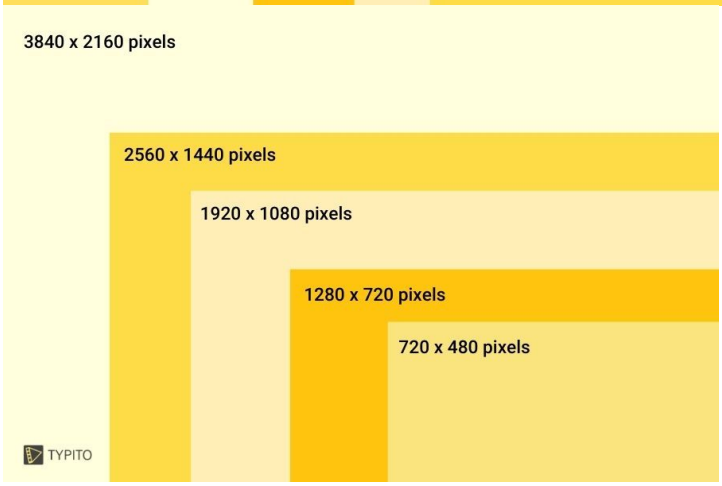
Resolution & Aspect Ratio

What is Resolution in video?

Resolution in video refers to the number of pixels that make up each frame, typically expressed as width x height in pixels (e.g., 1920 x 1080). Higher resolution means more pixels, resulting in clearer and more detailed image.

Resolution Type	Common Name	Aspect Ratio	Pixel Size
SD (Standard Definition)	480p	4:3	640 x 480
HD (High Definition)	720p	16:9	1280 x 720
Full HD (FHD)	1080p	16:9	1920 x 1080
QHD (Quad HD)	1440p	16:9	2560 x 1440
2K video	1080p	1:1.77	2048 x 1080
4K video or Ultra HD (UHD)	4K or 2160p	1:1.9	3840 x 2160
8K video or Full Ultra HD	8K or 4320p	16?9	7680 x 4320



The size of the projection, depends on the distance between the projector and the screen and the type of lens used (throw factor) To Calculate the real life size of your screen in (centi)meters depending on the projector specs; use this tool:

https://www.projectorcentral.com/projection-calculator-pro.cfm

Other Websites for resolution, pixel and aspect ratio calculations:

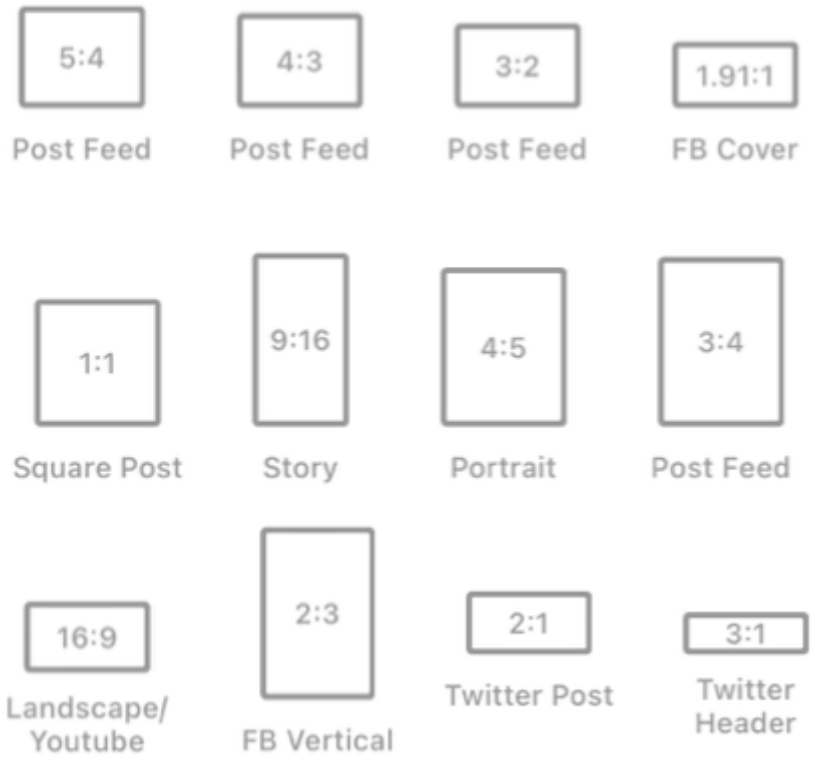
https://calculateaspectratio.com/

https://pixelcalculator.com/en/index.php

Different aspect ratio diagrams

An aspect ratio is the relationship between a video's width and height, typically expressed as two numbers separated by a colon (e.g., 16:9). Common aspect ratios include 16:9 for widescreen and 4:3 for standard television.

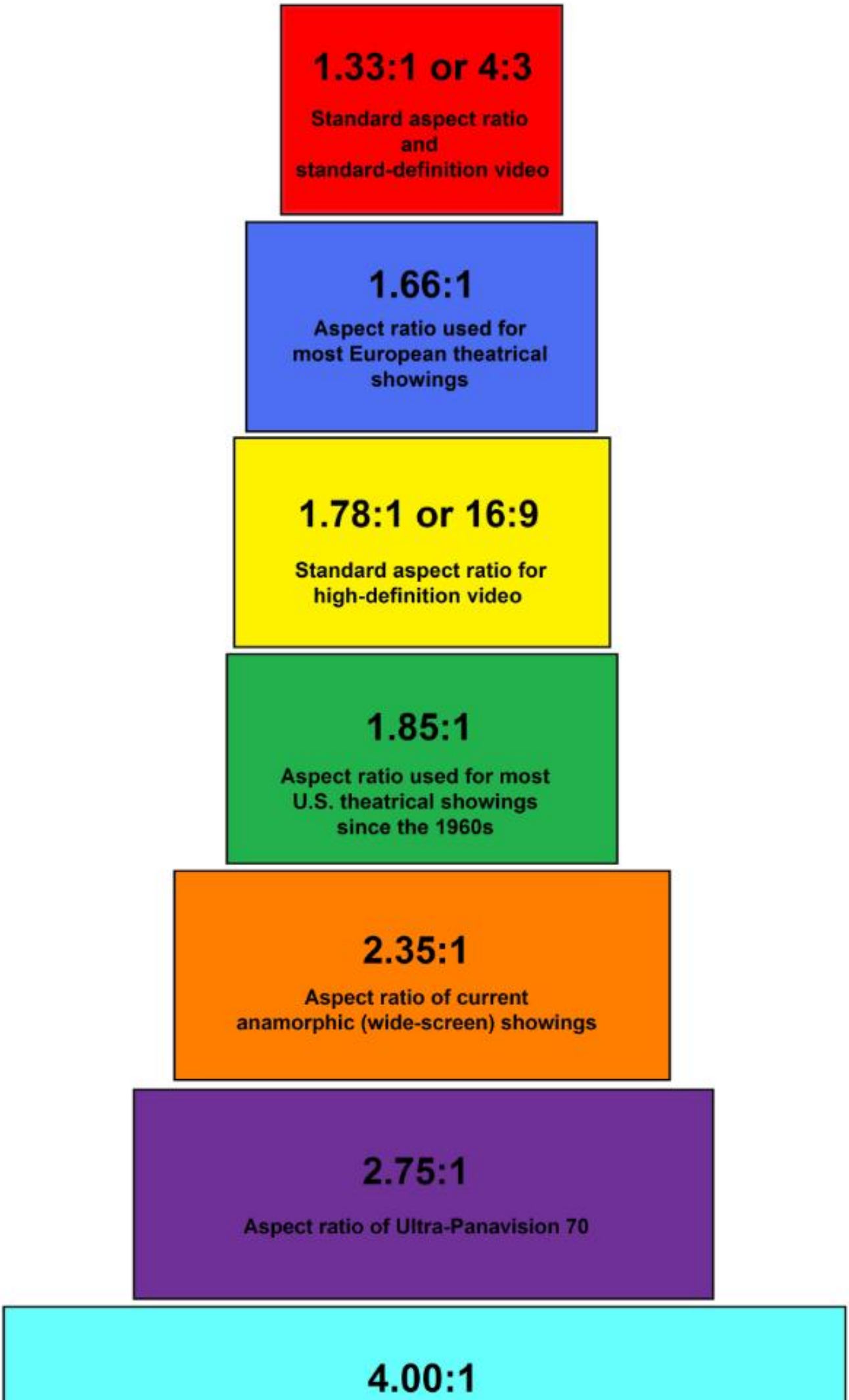
These are all measured in square pixels. (when working with analogue video systems there was temporarily a time we used anamorphic pixels to squish 16:9 content into 4:3 and unsquish it in the edit. A herritage (to do with changing standards, expensive sensors & lenses that solve the .)

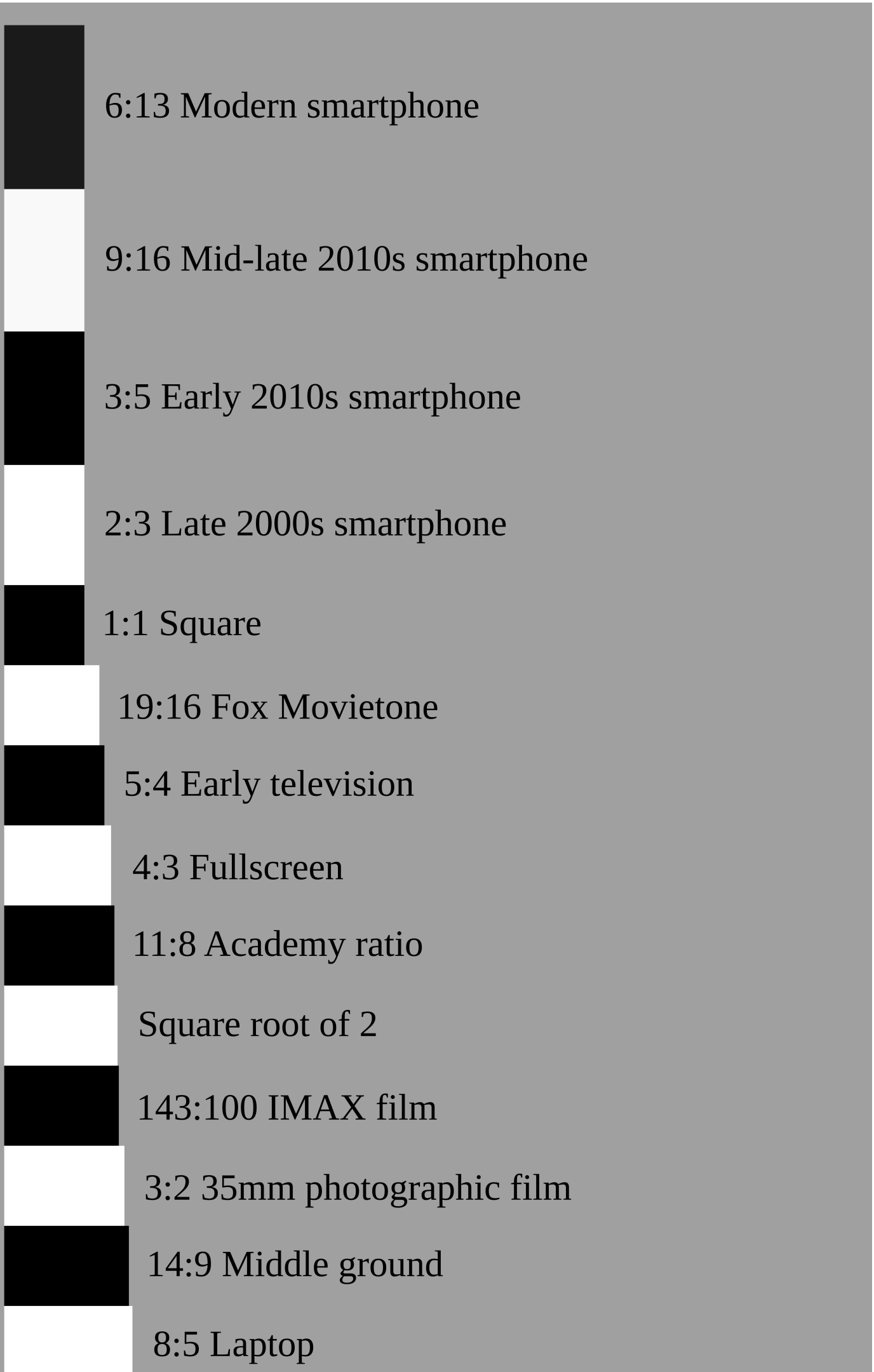


source: https://collart.app/choose-aspect-ratio-social-media-guide/

Aspect ratio's used in film:


4:3 (1,33:1)
1,75:1
1,85:1
2,39:1 ("Scope")
1,66:1
16:9 (1,77:1)
2:1 (Univisium)
2,39:1 ("Scope")


1.33:1 or 4:3
Standard aspect ratio and standard-definition video
1.66:1
Aspect ratio used for most European theatrical showings
1.78:1 or 16:9
Standard aspect ratio for high-definition video
1.85:1
Aspect ratio used for most U.S. theatrical showings since the 1960s
2.35:1
Aspect ratio of current anamorphic (wide-screen) showings
2.75:1
Aspect ratio of Ultra-Panavision 70
4.00:1


6:13 Modern smartphone
9:16 Mid-late 2010s smartphone
3:5 Early 2010s smartphone
2:3 Late 2000s smartphone
1:1 Square
19:16 Fox Movietone
5:4 Early television
4:3 Fullscreen
11:8 Academy ratio
Square root of 2
143:100 IMAX film
3:2 35mm photographic film
14:9 Middle ground
8:5 Laptop

Source: https://en.wikipedia.org/wiki/Aspect_ratio_(image)

What Do "p" and "i" Mean in Resolution?

People specify just the height (often referred to as either ‘p' or ‘i') when talking about resolutions. This implies that the height and width have a standard 16:9 aspect ratio.

- The "i" denotes the use of interlaced scanning, with video quality being lower when compared to the entire frame transmission,
- While the "p" signifies progressive scan.

p = Progressive video	**i = Interlaced video**
A video source listed with the letter "p" is known as Progressive scan.	A video source listed with the letter "i" is known as Interlaced scan.
Example: 1080p, 720p, or 480p.	Example: 1080i or 480i.
Displays both odd and even scan lines (the complete video frame) simultaneously. You need a HDMI Cable (of high speed) to transmit the video signal in 1080p.	Displays odd and even scan lines as individual fields. First, the screen draws even scan lines, followed by odd scan lines. Two odd and even scan line fields result in one video frame.

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