

Quintic Software

Tutorial 2

Make a Mark

v31

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1. Markers and Stopwatch

GO TO RE-CAP ON THE QUESTION SHEET (PAGE 12)

Open the video '400m Hurdles' in the 'Athletics' folder.

Open up the marker tab. Markers are used to jump between key frames of a video file. Use the video scroll bar to advance the video to frame 59. Once you have done this press Marker number '1'. This will now change to show frame number 59, see below.



Set the marker's name by right clicking on the frame number and typing in the box to the right, then click the tick box.



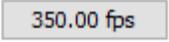
Repeat this process and set the other markers to the key frames: 65, 71, 77, and 85. Once you have done this press the 'Save all Markers'  button.

This has the same effect as for the memo pad. If you close down the whole program and reload this video, the saved markers will also be loaded by pressing the  button.

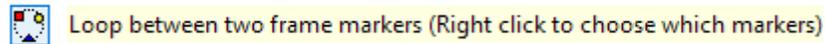
If you make any mistakes and want to clear the markers you have set, press this button  and start again.

If you want to delete one marker, click on the marker and press the 'CTRL' button to reset this marker.

Click on Marker 1 (frame 59) the moment of take-off. Click on the  0.000 button. This has set the stopwatch to measure the time elapsed from Marker 1 (frame 59). If you then click on Marker 4 (frame 77), this will show the elapsed time between the two frames (0.36 seconds) and advance the video to this frame. It is able to measure to six decimal places at very high frame rates.

N.B. If a non-Quintic camera has been used you may need to set the correct recording speed. This can be done by clicking on the frames per second  350.00 fps button shown within the 'Markers' Tab. Then, simply enter the correct frame rate. The correct recording speed can also be changed via the 'Digitisation' menu (see Tutorial 8a for more details), otherwise elapsed times will be calculated at the default speed of 30fps.

The video can also be played in a loop between two frame markers. Click the button below to try this.



GO TO QUESTIONS 1, 2 AND 3 ON THE QUESTION SHEET

If you have more than two frame markers set, you are able to choose the two markers you would like to loop between. This can be set by right clicking on the loop button within the markers tab.



This will bring up the option to choose the starting loop point and the ending loop point.

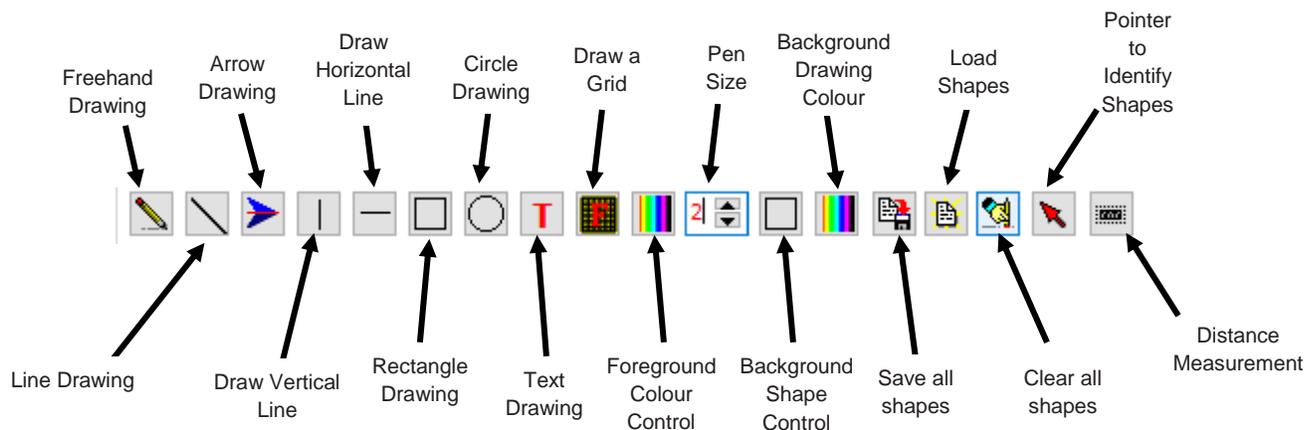
2. Creating Lines, Shapes and Text

Reset the '400m Hurdles' video clip to the beginning and click on the 'Shapes' tab as shown below.



A number of the buttons under this tab allow you to draw shapes on the video. The shapes will stay on throughout the video clip unless you remove them. Try them out.

Draw any of the shapes by clicking on the shape button you require, moving the cursor over the screen to where you want the shape to be, then holding down the left mouse button and dragging the shape across the screen.



Play the video through once you have added some shapes.



This button allows you to erase all the shapes you have drawn.



The button allows you to select any shape and erase it. Select this button, and then hold the cursor over the shape you'd like to erase. The shape will be highlighted and if you then double-click the left mouse button it will be erased.

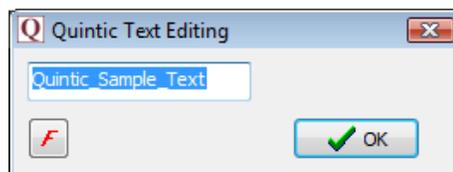
GO TO QUESTIONS 4 AND 5 ON THE QUESTION SHEET

The following buttons allow you to change the thickness and colour of the lines you draw.



The buttons below allow you to decide whether the shapes drawn (circle and rectangle drawing only) have a clear or coloured background. When the background shape control button is down (blue) the shape will have a clear background. When the background shape button is up (no colour) the shape will have a coloured background.

Click on the button with a red 'T' on it and you can place some writing anywhere on the video image. Click the 'F' that appears underneath the sample text box and you can change its font, colour and style etc. Write the text you require on the video in the sample text box, then click OK.



If you left click and hold on the video, your written text will be displayed on the video. Position this as you wish whilst still holding the left button on the mouse down. Once in position, simply let go of the left button and the text will be displayed on the video. Once the text has been positioned, you are unable to move it.

GO TO QUESTIONS 6 AND 7 ON THE QUESTION SHEET (PAGE 15)

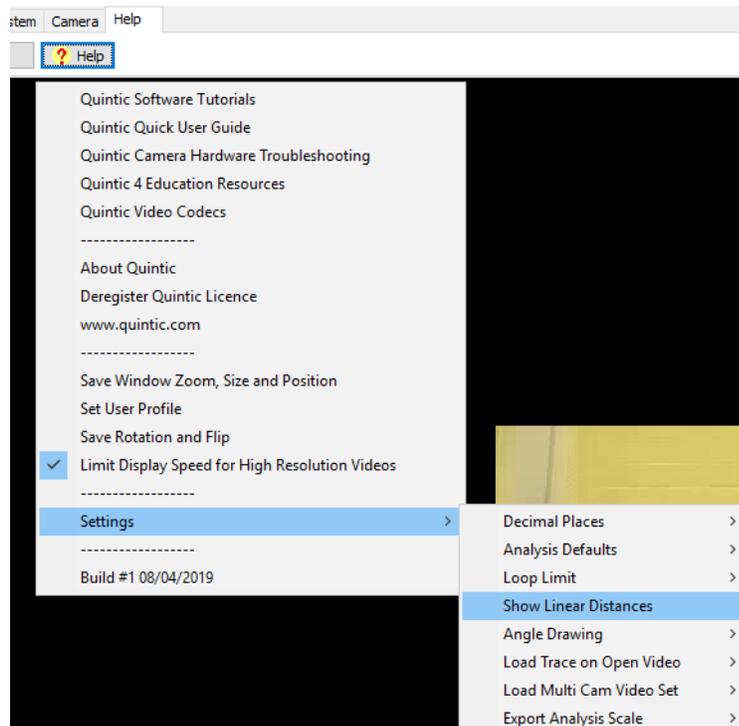
3. Calibrating and Measuring Linear Distances

To measure a desired distance on a video, the video first needs to be calibrated. This is done by pressing the distance  measurement button and then following the on-screen instructions.

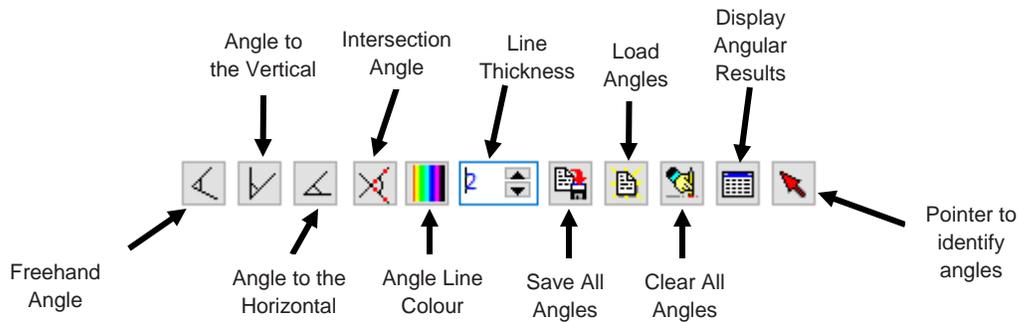
N.B. Extra calibration methods can be performed for improved accuracy within the 'Digitisation' tab. Please refer to Tutorial 8a.

After the calibration process has been completed a desired distance can be measured by left clicking on the  button and drawing a straight line between the two points you wish to measure. When the line has been drawn on the video, the distance in metres or feet (depending on calibration) will appear on the line that has been drawn.

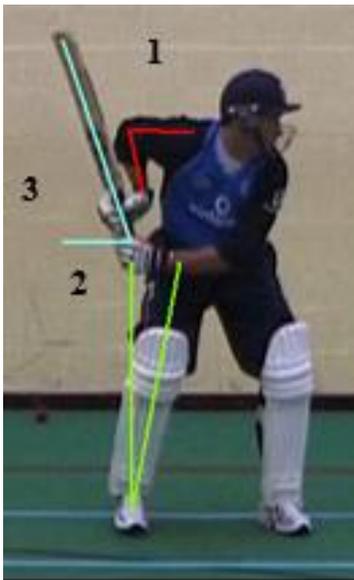
When drawing a line or distance measurement after it has been calibrated, the distance of the line will always be displayed. To turn this off, please go the 'Help' tab, Help, Settings, then either tick or untick 'Show Linear Distances'



4. Angles



There are four different types of angles that can be created. For each one, hold down the left mouse button and drag on the screen the length of the object for which you wish to measure an angle, then release the mouse button. Examples of these angles are shown below:



1. The angle between two straight lines e.g. Elbow angle.



2. The angle between a line you specify and an exact vertical line e.g. angle of body lean. Left mouse button will draw the vertical line up, the right mouse button will draw the vertical line down.



3. The angle between a line you specify and an exact horizontal line e.g. angle at which the bat is being held. Left mouse button will draw the horizontal line to the left, the right mouse button will draw the horizontal line to the right.



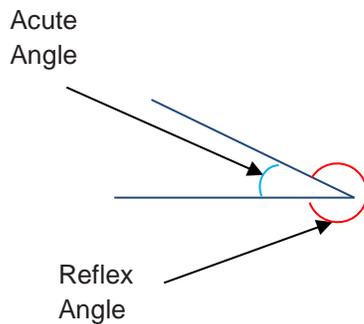
The intersection angle. Draw two straight lines anywhere on the video (they do not have to join) and the intersection angle will be calculated and displayed.



In the same way as the shapes, the line colour and thickness of the angles can be changed using the   buttons.

These angles have automatically been calculated for you and can be displayed by clicking the  button on the right hand side at the top.

The results shown in the left column are the drawn angles, and the results shown in the right column are the opposite angles.

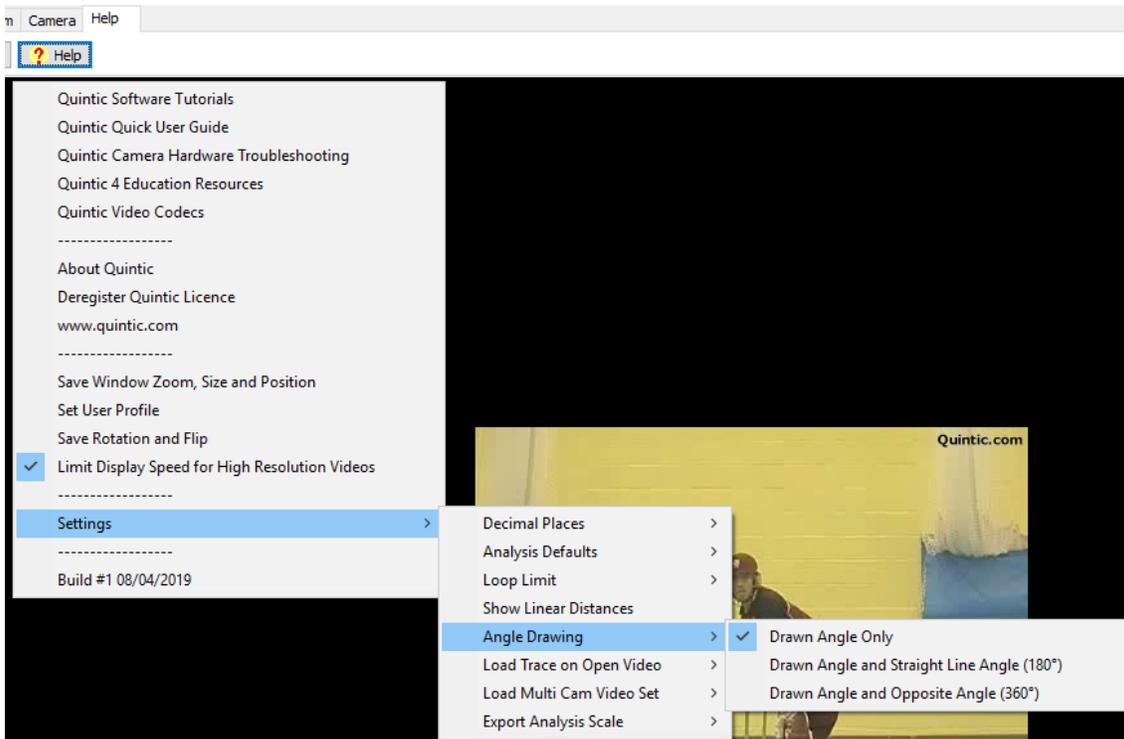


Results	
Trace Angles	
75.32°	284.68°
9.95°	350.05°
60.56°	299.44°

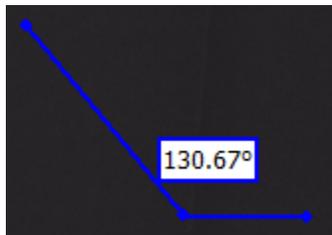
Open the video '**Batting back foot drive - SV**' from the '**Cricket**' folder. Now click on the '**Angles**' tab. This function allows you to draw angles on the screen.

The  button allows you to select any angle and erase it. Select this button, and then hold the cursor over the angle you'd like to erase. The angle will be highlighted and if you then double-click the left mouse button it will be erased.

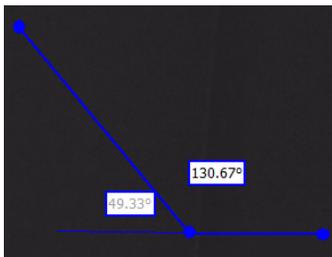
Within the Help tab, Help, under Settings, Angle Drawing there are a range of different angle options available. These include:



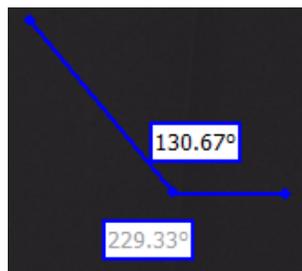
Drawn Angle only



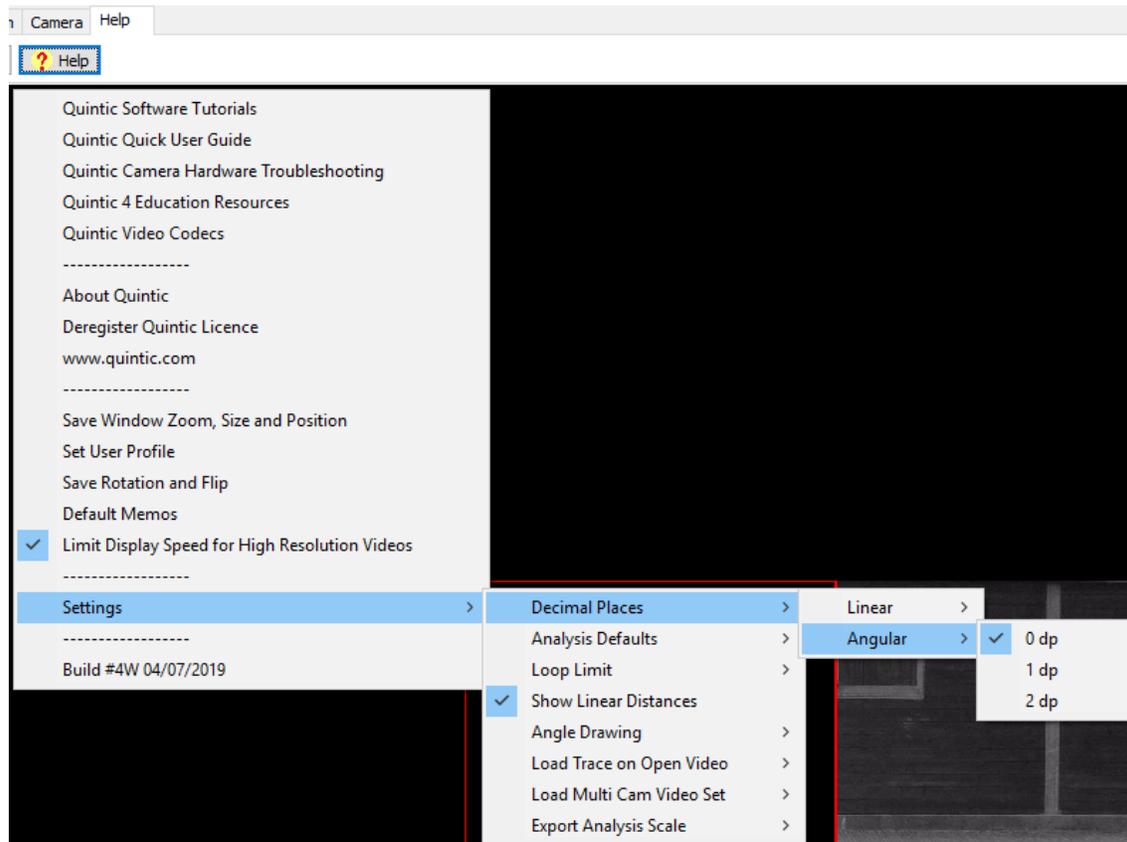
Drawn Angle and Straight Line Angle (180°)



Drawn Angle and Opposite Angle (360°)



Users are also able to control how many decimal places are displayed for the drawn angle.



5. Floating Toolbars

To load the floating toolbars right click on the desired window tab ('Markers', 'Shapes' or 'Angles') and this will load the relevant floating toolbar for the selected window. To load the floating toolbar you must be within that tab.

All three of the floating toolbars (Markers, Shapes and Angles) can be opened at one time.



GO TO QUESTION 8 ON THE QUESTION SHEET (PAGE 16)

Question Sheet

RECAP

Open '**Bowling – Back view**' from the '**Cricket**' folder.

1) Set the video at frame 40 and zoom of 1.0. What point has the co-ordinates.

X = 387.00, Y =142.00?

.....

2) At Frame 53 and zoom of 1.0, what are the coordinates of:

a) The top of the bowler's right hand X = Y =

b) The ball X = Y =

c) The toes on the bowler's right foot X = Y =

BACK TO TUTORIAL SHEET (PAGE 3)

QUESTIONS

Using the video file '**400m Hurdles**' from the '**Athletics**' folder.

1) What distinctive point during the action do these markers indicate?

59 =

65 =

71 =

77 =

85 =

2) Use these markers to find out how much time there is between:

- a) Take-off and landing?secs
- b) Take-off and the left foot passing over the hurdle?secs
- c) Frames 65 and 71?secs
- d) Frames 77 and 85?secs

(2)

3) Open another video of your choice and use the markers to pinpoint 5 key stages during the action. Note down the 5 frames you have marked, what key stages of the action they mark and the times between them.

Frame number	Description	Time Difference

(10)

BACK TO TUTORIAL SHEET (PAGE 4)

4) Experiment with the different buttons for drawing shapes. What are the functions of these buttons?



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(6)

Open video '**Bowling – back view**' from the '**Cricket**' folder.

5) Use the  function to circle the head of the bowler in frame 38. Now describe the movement of the head in the next 10 frames. E.g. Does it move left/right? etc.

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.....
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.....
.....
.....
.....

(3)

BACK TO TUTORIAL SHEET (PAGE 5)

Open video '**Bowling side view**' from the '**Cricket**' folder.

6)

(a) Scroll to frame 29 (this is the point of 'front foot contact' and is a key stage in the cricket bowling action). On this frame draw:

- (i) A thick red horizontal line along the bowler's eye line.
- (ii) A thin green vertical line starting at the bowler's left toes.
- (iii) A yellow thin circle around the ball.
- (iv) A blue, medium-thickness line that runs along the left leg.
- (v) A box filled in white with red writing inside it stating your name.

(b) Click on the camera button at the bottom of the screen  .

(c) Save this as a JPEG (8)

Open video '**10m - Twist**' from the '**Diving**' folder.

7)

(a) Scroll to frame 89. Draw a line down the length of the diver's body. Repeat this every 10 frames until they enter the water in frame 209.

Use all these buttons in the process:    

This will allow you to see the path of their body during the dive.

b) Click on the camera button  at the bottom of the screen to create a 'single image capture'.

(c) Save this as a JPEG (5)

BACK TO TUTORIAL SHEET (PAGE 6)

Open 'Batting 4 – SV' from the 'Cricket' folder.

8)

a) Scroll to frame 46:

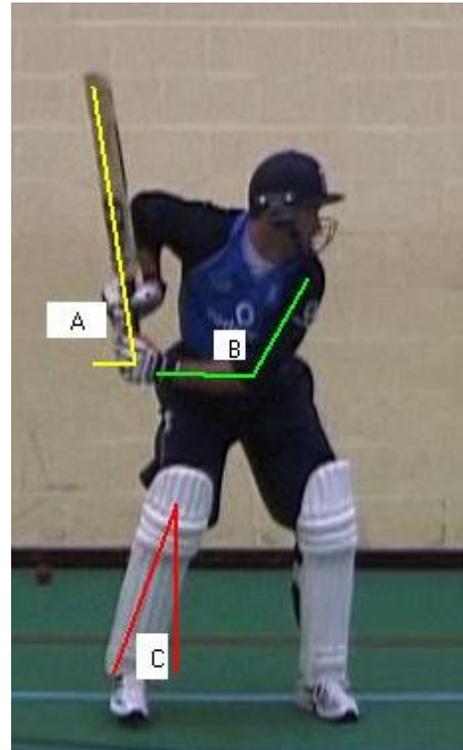
Can you create these same angles?

What are the opposite angles at:

(Bat to the horizontal) $A = 81.41$

(Elbow angle) $B = 117.36$

(Lower leg to the vertical) $C = 20.36$



(3)

b) Scroll to frame 62 (Impact).

Draw angles A, B and C again. Write down the size of each angle and any noticeable differences between the two frames.

Description

Angle

Description

Angle

Description

Angle

(6)

(/ 48)