Feedback — Quiz 2

Help Center

You submitted this quiz on **Tue 9 Apr 2013 9:47 AM PDT**. You got a score of **11.00** out of **11.00**.

Question 1

Choose all options that accurately describe different properties of a pinhole camera.

Your Answer		Score	Explanation
☑ Pinhole images have no distortion and an infinite depth of field.	✔	0.25	This option is true. Pinhole images preserve straight edges and everything is in focus.
☑ Smaller pinholes result in diffraction, where interference between waves of light forms rings in the image.	✔	0.25	This option is true.
☑ The pinhole selects a small number of rays from the scene which result in an inverted image.	✔	0.25	This option is true.
☑ Larger pinholes result in a geometric blur, in which every point in the image captures light from a small neighborhood in the scene.	✔	0.25	This option is true.
Total		1.00 / 1.00	

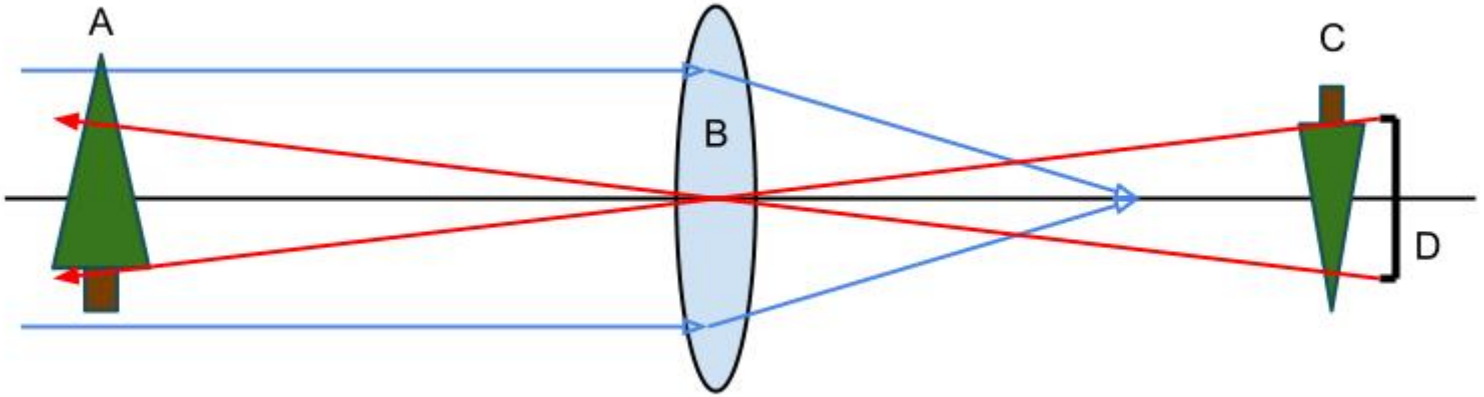
Question 2

Select all options that accurately describe different properties of a lens.

Your Answer		Score	Explanation
☐ Lenses take light that is converging at the lens center and make it parallel.	✔	0.25	This option is false. Lenses take parallel light and make it converge to a point.
☐ When a scene is projected through a lens it results in an upright image on the sensor.	✔	0.25	This option is false. Lenses, like pinholes, result in an inverted image.
☑ The lens does not affect rays of light that pass through its center.	✔	0.25	This option is true.
☑ Lenses are used because they allow us to increase the amount of light hitting the sensor without making the image more blurry.	✔	0.25	This option is true.
Total		1.00 / 1.00	

Question 3

Consider the following image:



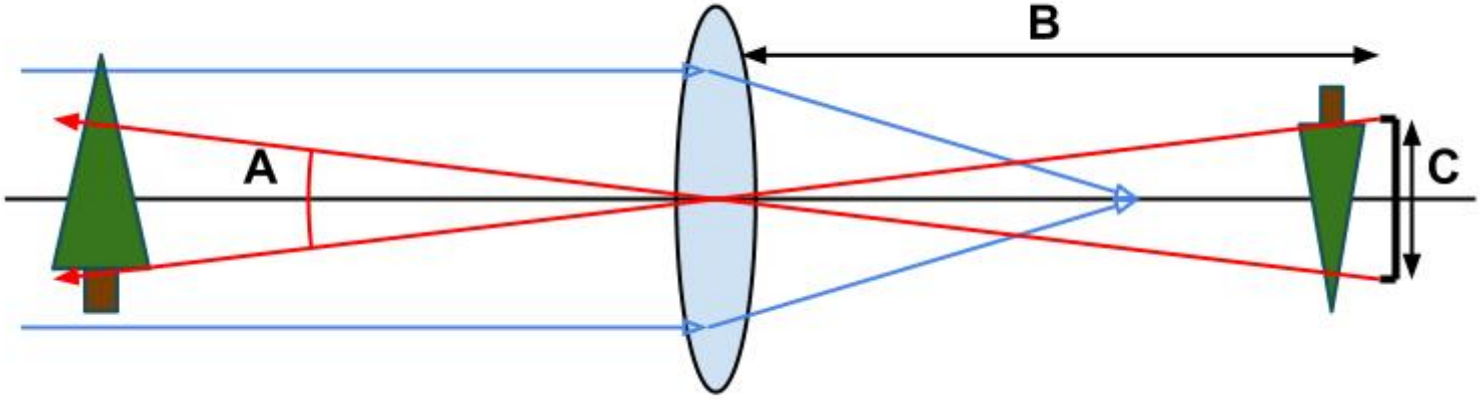
Please choose the one option that accurately assigns a term to each label.

Your Answer		Score	Explanation
A: scene object B: lens C: inverted image D: sensor	✔	1.00	Correct!
A: inverted image B: lens C: scene object D: sensor			
A: scene object B: focal point C: inverted image D: sensor			
A: scene object B: pinhole C: distorted image			

D: focal point	
Total	1.00 / 1.00

Question 4

Consider the following image:



'A' corresponds to the angle between the two red beams. 'B' and 'C' are distances indicated by the arrows.

Please choose the one option that accurately describes the relationship between the labeled quantities.

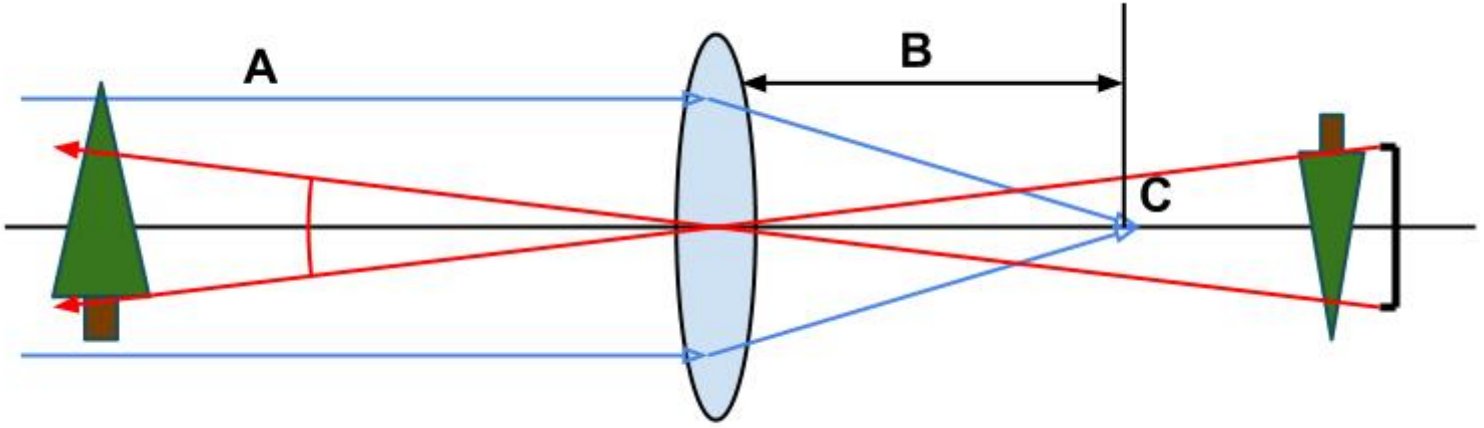
Your Answer		Score	Explanation
○ A = 2 arctan(B / 2C)			
○ C = 2 arctan(B / 2A)			
◉ A = 2 arctan(C / 2B)	✔	1.00	Correct!

C = 2 arctan(A / 2B)

Total	1.00 / 1.00

Question 5

Consider the following image:



Please choose the one option that accurately assigns a term to each label.

Your Answer		Score	Explanation
A. Scene object B. Focal point C. Principal axis			
A. Parallel light B. Focal length C. Principal axis	✔	1.00	Correct!

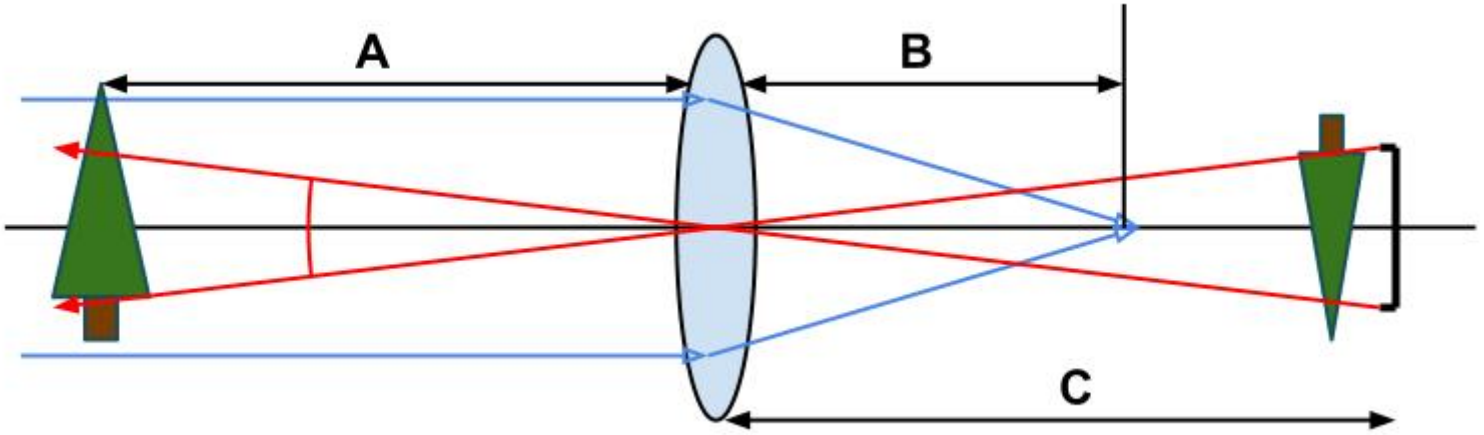
A. Scene object
B. Focal length
C. Field of view

A. Parallel light
B. Field of View
C. Focal point

Total 1.00 / 1.00

Question 6

Consider the following image:



Please choose the one option that accurately describes the relationship between the distances 'A', 'B' and 'C' in order for the image to be in focus.

Your Answer		Score	Explanation
1/A + 1/B = 1/C			
1/A - 1/C = 1/B			
1/A + 1/C = 1/B	✔	1.00	Correct!
1/B + 1/C = 1/A			
Total		1.00 / 1.00	

Question 7

Please choose all of the answers that accurately describe the steps you could take in order to increase the field of view of a camera.

Your Answer		Score	Explanation
☑ Decrease the distance between the lens and the sensor.	✔	0.25	Correct!
☐ Move the camera further back from the scene.	✔	0.25	This option is not true. Recall that FOV refers to the angle that can be captured by the sensor. Moving the camera does allow you to capture more of the scene, but does not affect the angle.
☐ Choose a lens with a shorter focal length.	✔	0.25	This option is not true. Recall the equation for FOV. If you were to only replace the lens while keeping everything constant, your image would become out of focus, but you would not change the FOV.
☑ Increase the size of the sensor.	✔	0.25	Correct!

Total	1.00 / 1.00

Question 8

Suppose you are taking an image of a very far away object. How far away from the lens should you place the sensor in order for the object to appear in focus?

Your Answer		Score	Explanation
◉ At the focal length of the lens.	✔	1.00	Correct! There are two ways to think about this. First, light from a distant object will be nearly parallel when it hits the lens, so it will converge at the focal length. Second, consider the focal point equation: 1/A + 1/B = 1/f. As A goes to infinity, 1/A goes to 0 and we are left with 1/B = 1/f, which means B = f.
○ As close to the lens as possible.			
○ It doesn't matter - distant objects will be in focus regardless of where we place the sensor.			
○ As far away from the lens as possible.			
Total		1.00 / 1.00	

Question 9

Please choose all of the options that describe how you could increase the exposure of a shot.

Your Answer		Score	Explanation
☑ Increase the aperture.	✔	0.12	Correct!
☐ Decrease the aperture.	✔	0.12	This option is not correct.
☑ Decrease the shutter speed.	✔	0.12	Correct!
☐ Increase the shutter speed.	✔	0.12	This option is not correct.
☐ Increase the aperture Number N, where the aperture is f/N.	✔	0.12	This option is not correct.
☐ Decrease the light in the scene.	✔	0.12	This option is not correct.
☑ Increase the light in the scene.	✔	0.12	Correct!
☑ Decrease the aperture number N, where the aperture is f/N.	✔	0.12	Correct!
Total		1.00 / 1.00	

Question 10

Please choose the one option that describes the relationship between aperture, depth of field, shutter speed and motion blur.

Your Answer	Score	Explanation

◉ Increasing aperture decreases the depth of field, and increasing shutter speed decreases motion blur.	✔	1.00	Correct!
○ Decreasing aperture decreases the depth of field, and increasing shutter speed decreases motion blur			
○ Increasing aperture decreases motion blur, and increasing shutter speed increases the depth of field.			
○ Increasing aperture decreases the depth of field, and increasing shutter speed increases motion blur.			
Total		1.00 / 1.00	

Question 11

Please select the one option that accurately describes the pairing between film sensitivity, light, and graininess.

Your Answer		Score	Explanation
◉ Doubling ISO requires half of the light, and increases the graininess.	✔	1.00	Correct!
○ Doubling ISO requires double the light, and decreases the graininess.			
○ Doubling ISO requires double the light, and increases the graininess.			
○ Doubling ISO requires half the light, and decreases the graininess.			
Total		1.00 / 1.00	