

Моделирование объектов и событий

► BLENDER



Global context

Globalization and sustainability

How is everything connected?

MYP command terms

Construct

Display information in a diagrammatic or logical form.

Отразить информацию в виде графика, диаграммы либо логической конструкции.



Learning profile

Knowledgeable

Навыки ATL

Transfer

перенос знаний в

новую ситуацию

ПРОГРАММА BLENDER -
ЭТО ПАКЕТ ДЛЯ
СОЗДАНИЯ
ТРЕХМЕРНОЙ
КОМПЬЮТЕРНОЙ
ГРАФИКИ.





Blender

ИСПОЛЬЗУЕТСЯ ДЛЯ 3D
МОДЕЛИРОВАНИЯ И
ВИЗУАЛИЗАЦИИ.



В первую очередь они
необходимы для 3D
модельеров — они
создают 3D модели
персонажей, зданий,
техники животных для игр,
и реже в киноиндустрии.

- 
- ▶ Во вторую очередь это необходимо для профессии визуализатор. Визуализация интерьеров помещений, экстерьеров, выставочных стендов.

В третью очередь это дизайнеры. Для создания наружной рекламы, печатной продукции, а так же дизайна сайтов. Чаще гораздо проще и быстрее смоделировать объект в нужном ракурсе, чем искать его и подбирать ракурс или рисовать, и получается гораздо реалистичнее, так как при визуализации объекта учитываются физические особенности





Во первых он является свободным движком 3D моделирования - это означает, что вы можете его использовать как в личных, так и в коммерческих целях. А так же у него есть открытый исходный код, что позволяет при навыках программирования изменять эту программу по своему усмотрению.

form:

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icate Objects

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ng:

th Flat

ames:

Remove

on Paths:

late Clear

at:

at Last

ry...

se Pencil:

Line

Erase

se Sketching Sessions

Protractor

id Body Tools

nslate

r

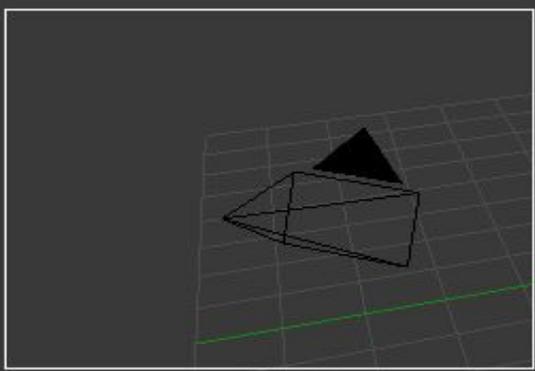
X: -0.812

Y: 0.000

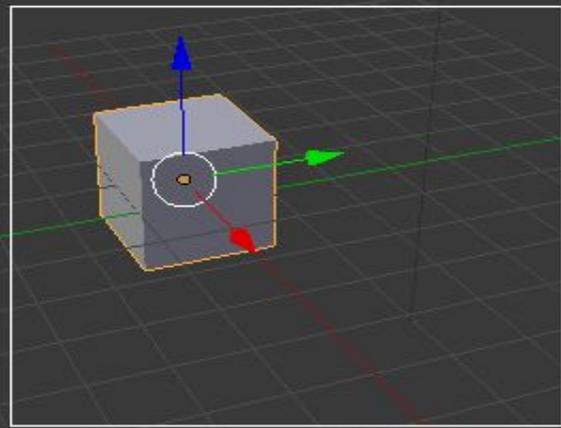
Z: 0.000

raint Axis

камера



ИСТОЧНИК ОСВЕЩЕНИЯ



**меш
(или объект)**



View Search All Scenes

Scene

- RenderLayers
- World
- Camera
- Cube
- Lamp

Scene

Render Animation Play

Display: Image Editor

Dimensions

Render Presets

Resolution: X: 1920 Y: 1080 50%

Frame Range: Start Frame: 1 End Frame: 250 Frame Step: 1

Aspect Ratio: X: 1.000 Y: 1.000

Frame Rate: 24 fps

Time Remapping: Old: 100 New: 100

Anti-Aliasing

5 8 11 16 Mitchell-Netrvali

Full Sample Size: 1.000

Sampled Motion Blur

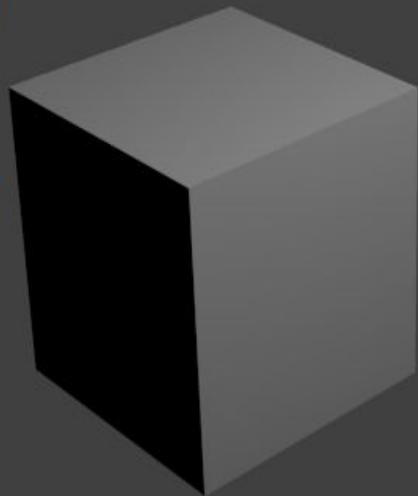
Shading

Performance

Post Processing

Freestyle

Рендеринг – это термин компьютерной графики, которым обозначают процесс визуализации, или построения изображения, модели с помощью компьютерной программы.



F12

Выполниться рендеринг

▼ Object Tools

Transform:

Translate

Rotate

Scale

Origin

Object:

Duplicate Objects

Delete

Join

Shading:

Smooth Flat

Keyframes:

Insert Remove

Motion Paths:

Calculate Clear

Repeat:

Repeat Last

History...

Grease Pencil:

Draw Line

Poly Erase

Use Sketching Sessions

Ruler/Protractor

► Rigid Body Tools

▼ Translate

Vector

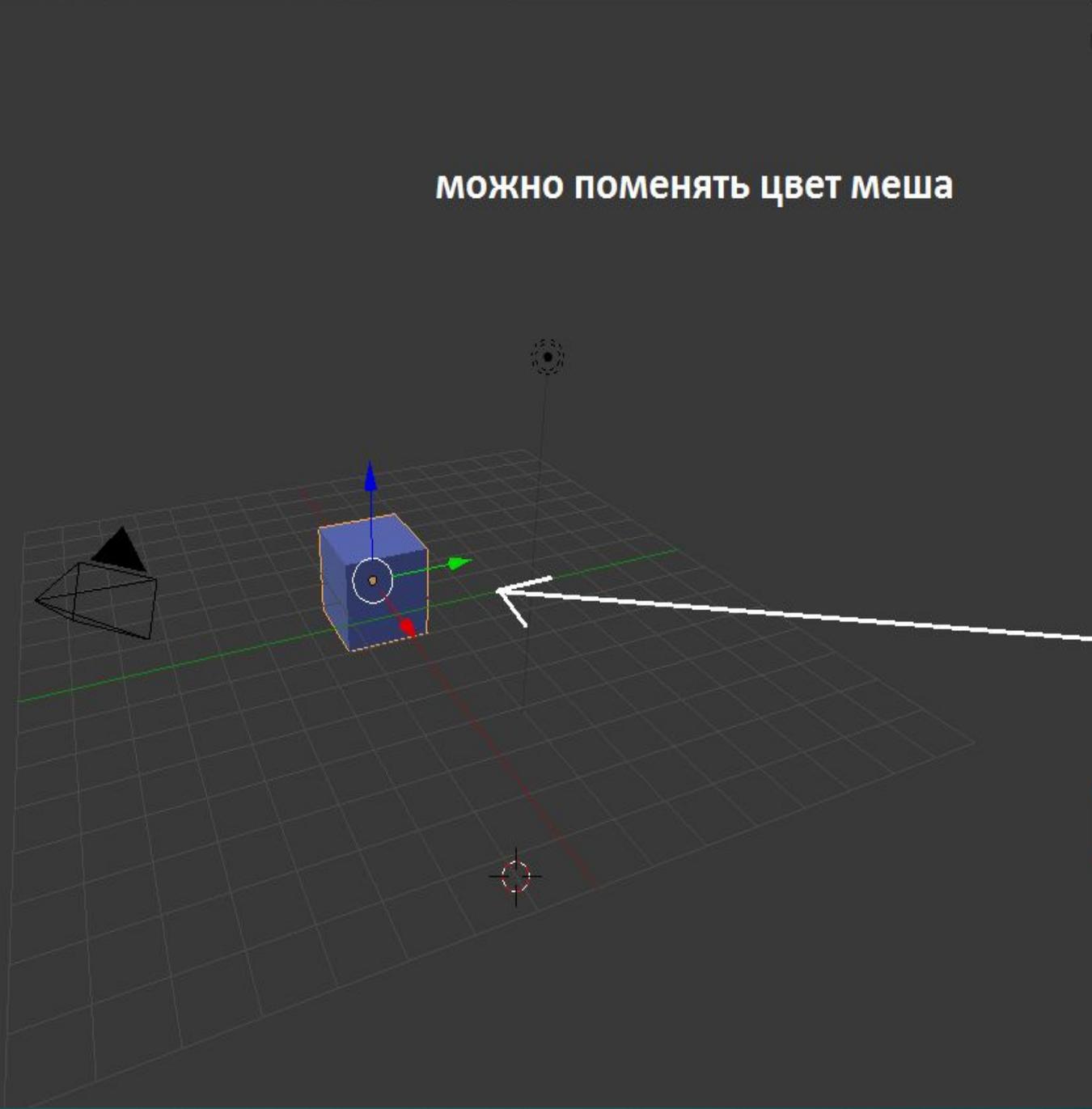
X: 0.000

Y: 0.000

Z: 0.000

Constraint Axis

User Persp



View Search All Scenes

Scene

- RenderLayers
- World
- Camera
- Cube
- Lamp

Material

Material

Material

Surface Wire Volume

Preview

Diffuse

Lambert

Intensity: 0.000

Ramp

Specular

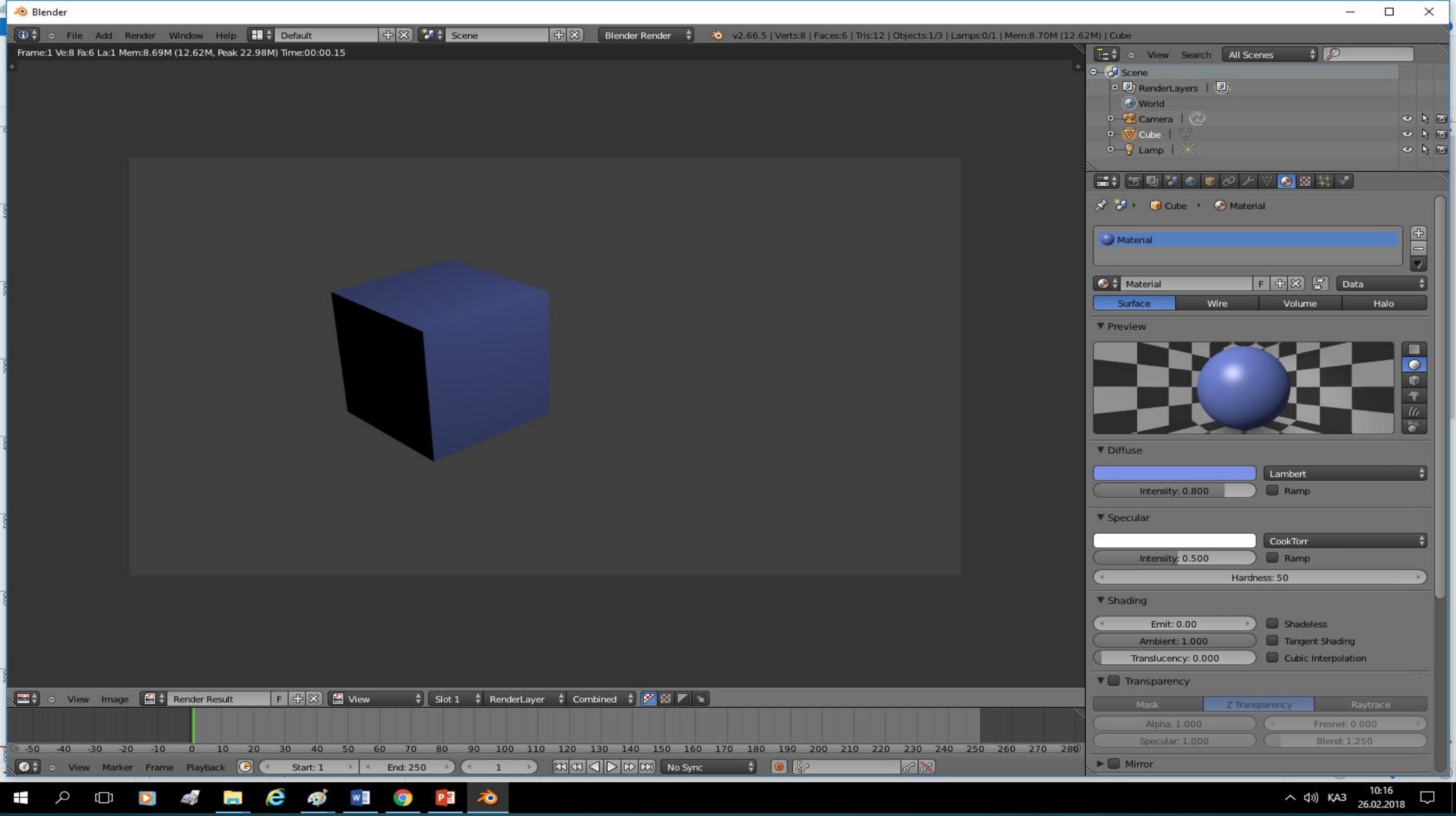
CookTorr

Intensity: 0.500

Ramp

Hardness: 50

Shading



File Add Render Window Help Default Scene Blender Render

Scene RenderLayers World Camera Cube Lamp

Material Surface Wire Volume Halo Preview Diffuse Lambert Intensity: 0.800 Specular CookTorr Intensity: 0.500 Hardness: 50 Shading Emit: 0.00 Ambient: 1.000 Translucency: 0.000 Transparency Alpha: 1.000 Specular: 1.000 Fresnel: 0.000 Blend: 1.250

View Image Render Result View Slot 1 RenderLayer Combined

Timeline: Start: 1 End: 250 1 No Sync

выберем источник освещения и создадим КОПИЮ

Object Tools

Transform:

Translate

Rotate

Scale

Origin

Object:

Duplicate Objects

Delete

Join

Keyframes

Insert Remove

Motion Paths:

Calculate Clear

Repeat:

Repeat Last

History...

Grease Pencil:

Draw Line

Poly Erase

Use Sketching Sessions

Ruler/Protractor

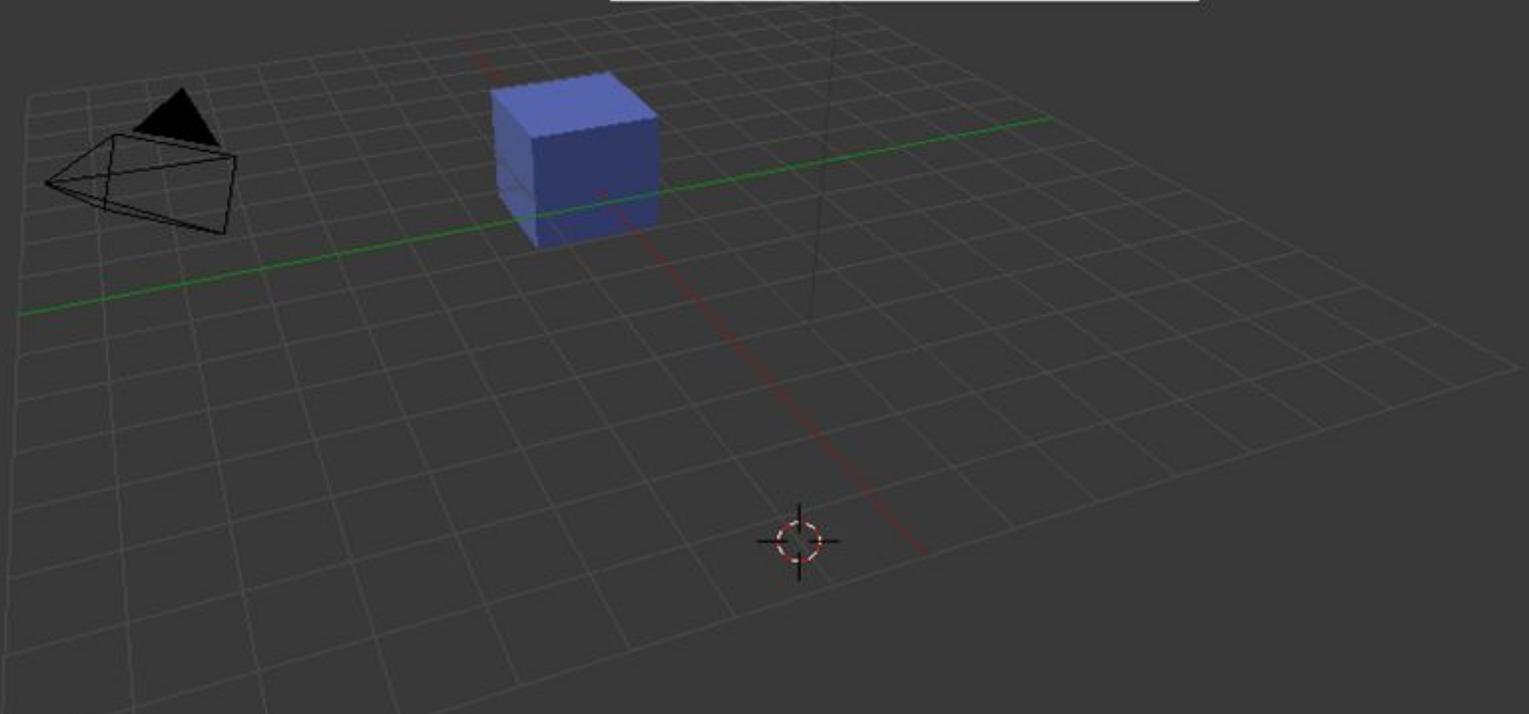
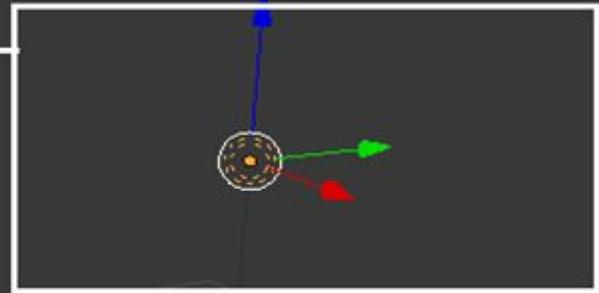
Rigid Body Tools

Translate

Vector

X: 0.000

Duplicate selected objects and move them
Shortcut: Shift D
Python: bpy.ops.object.duplicate_move()



Object Tools

Transform:

- Translate
- Rotate
- Scale

Origin

Object:

- Duplicate Objects
- Delete
- Join

Keyframes:

- Insert
- Remove

Motion Paths:

- Calculate
- Clear

Repeat:

- Repeat Last

History...

Grease Pencil:

- Draw
- Line
- Poly
- Erase

Use Sketching Sessions

Ruler/Protractor

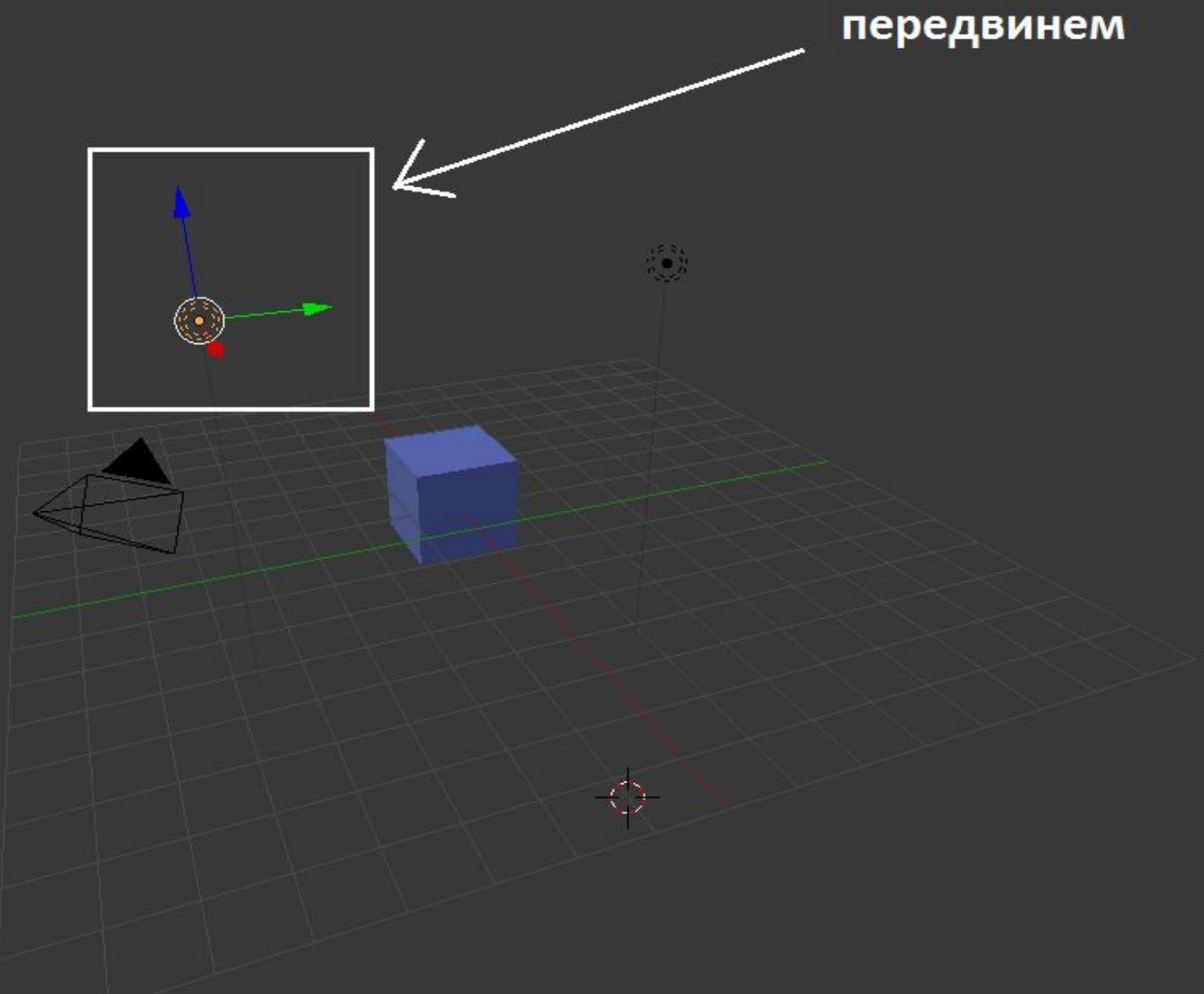
Rigid Body Tools

Translate

Vector

- X: 0.000
- Y: -3.423
- Z: 0.000

User Persp



передвинем

Scene

- Render
- Light
- Material
- Object
- Mesh
- Text
- Image
- Video
- Audio
- Particle
- Curve
- Font
- Text
- Image
- Video
- Audio
- Particle
- Curve
- Font

Lamp

Preview

Lamp

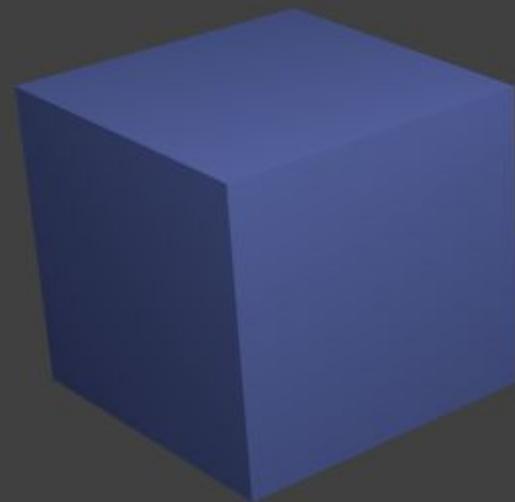
Point

Falloff:

Inverse Sq

Sphere

Shadow



**два источника
освещения создают
более мягкое
изображение**



Object Tools

Transform:

Translate

Rotate

Scale

Origin

Object:

Duplicate Objects

Delete

Join

Shading:

Smooth Flat

Keyframes:

Insert Remove

Motion Paths:

Calculate Clear

Repeat:

Repeat Last

History...

Grease Pencil:

Draw Line

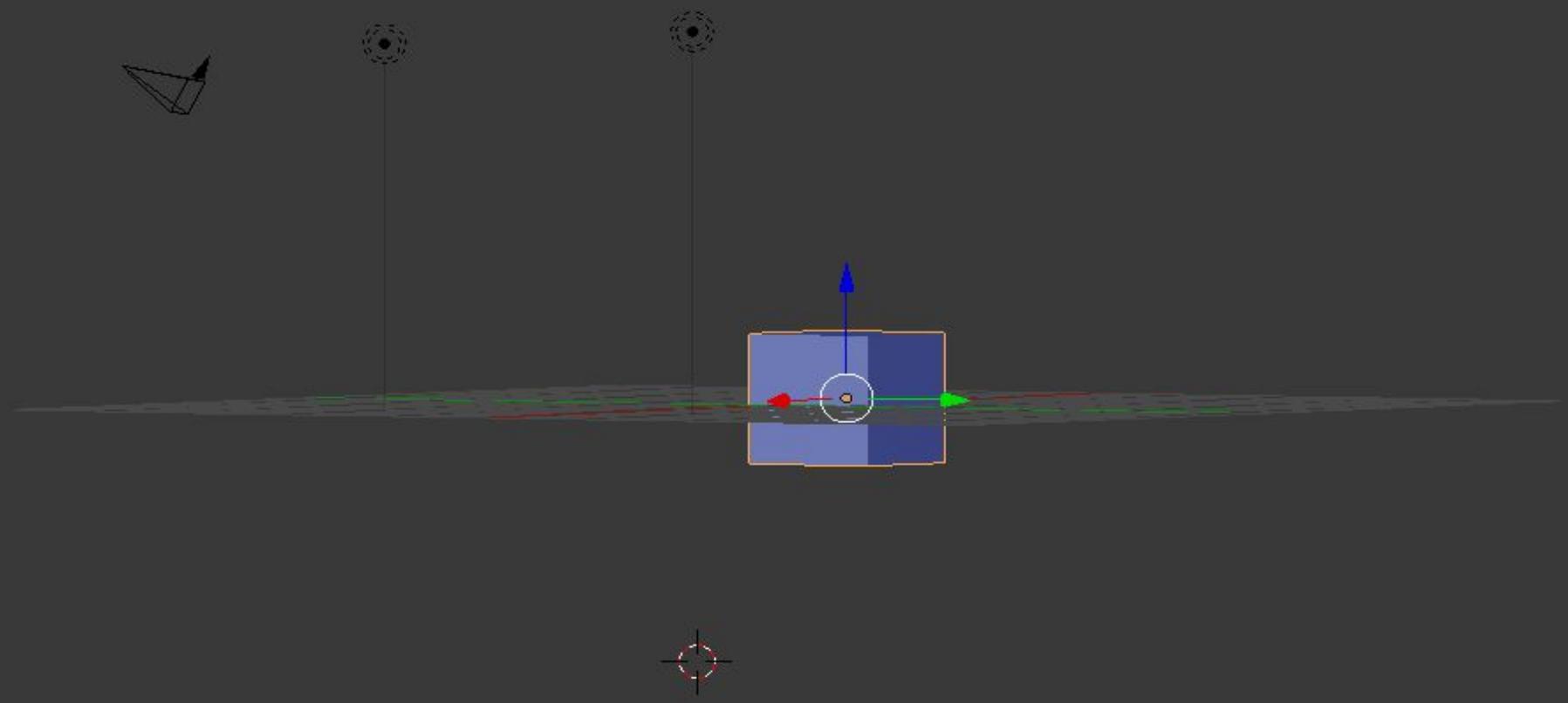
Poly Erase

Use Sketching Sessions

Ruler/Protractor

User Ortho

**если покрутить колесико мыши, то
меш можно рассматривать под
другим углом**



Translate

Vector

X: 0.000

Y: -3.423

Z: 0.000

Object Tools

Transform:

Translate

Rotate

Scale

Origin

Object:

Duplicate Objects

Delete

Join

Shading:

Smooth Flat

Keyframes:

Insert Remove

Motion Paths:

Calculate Clear

Repeat:

Repeat Last

History...

Grease Pencil:

Draw Line

Poly Erase

Use Sketching Sessions

Ruler/Protractor

Rigid Body Tools

Translate

Vector

X: 0.000

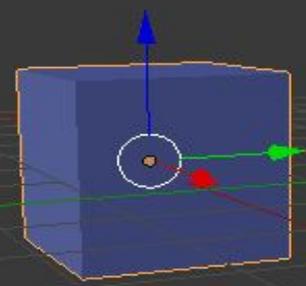
Y: -3.423

Z: 0.000

Constraint Axis

User Persp

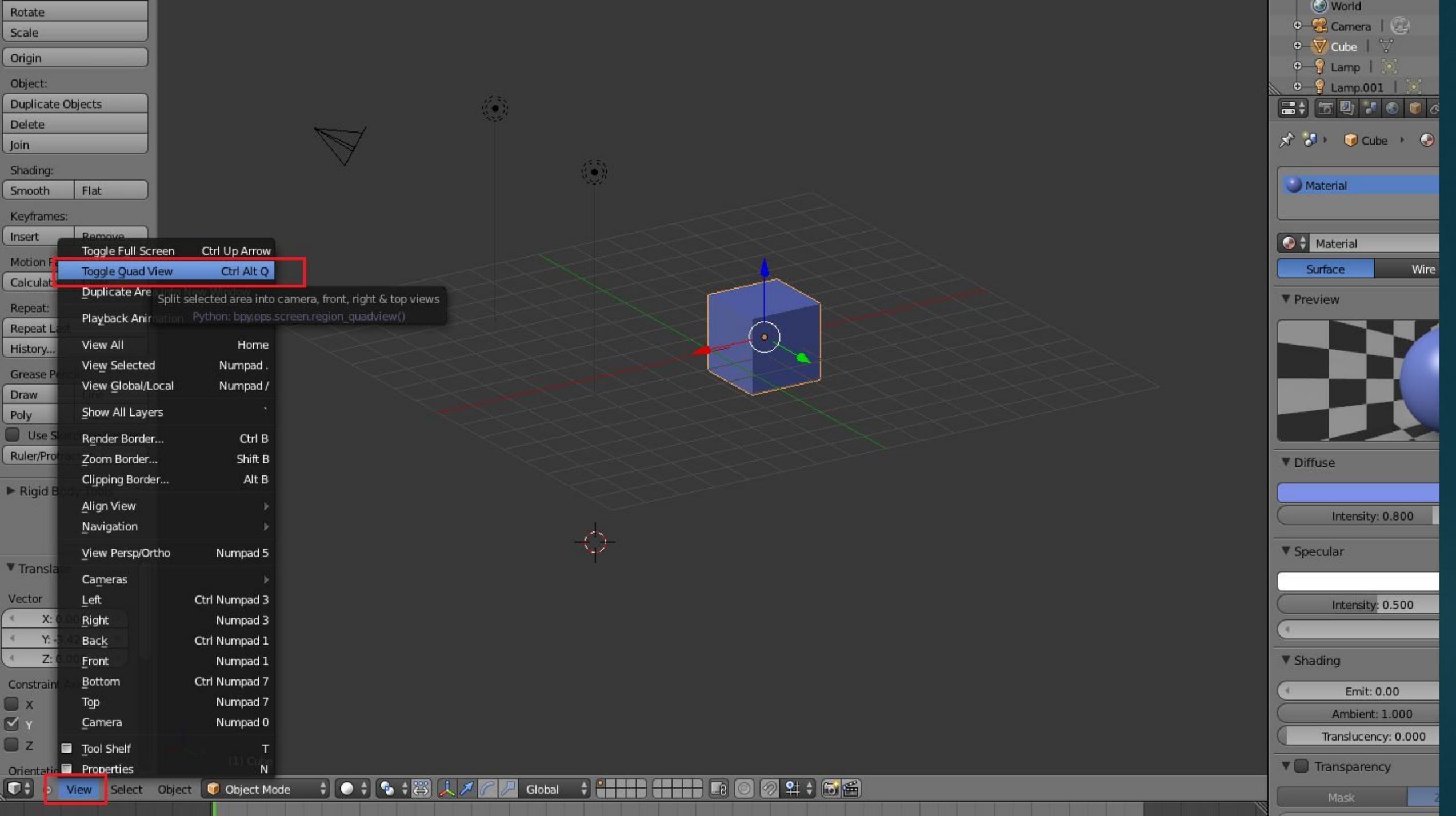
меш можно передвигать
по трем осям



РАБОТА С

ОКНАМИ





Toggle Full Screen Ctrl Up Arrow

Toggle Quad View Ctrl Alt Q

Duplicate Area Split selected area into camera, front, right & top views

Playback Animation Python: bpy.ops.screen.region_quadview()

View All Home

View Selected Numpad .

View Global/Local Numpad /

Show All Layers

Render Border... Ctrl B

Zoom Border... Shift B

Clipping Border... Alt B

Align View

Navigation

View Persp/Ortho Numpad 5

Cameras

Left Ctrl Numpad 3

X: 0.00 Right Numpad 3

Y: -3.42 Back Ctrl Numpad 1

Z: 0.00 Front Numpad 1

Bottom Ctrl Numpad 7

X Top Numpad 7

Y Camera Numpad 0

Z Tool Shelf T

Orientation Properties N

View

Select

Object

Object Mode

Global

Material

Material

Surface

Wire

Preview

Diffuse

Intensity: 0.800

Specular

Intensity: 0.500

Shading

Emit: 0.00

Ambient: 1.000

Translucency: 0.000

Transparency

Mask

Object Tools

Transform:

Translate

Rotate

Scale

Origin

Object:

Duplicate Objects

Delete

Join

Shading:

Smooth

Flat

Keyframes:

Insert

Remove

Motion Paths:

Calculate

Clear

Repeat:

Repeat Last

History...

Grease Pencil:

Draw

Line

Poly

Erase

 Use Sketching Sessions

Ruler/Protractor

Rigid Body Tools

Translate

Vector

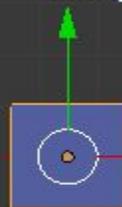
X: 0.000

Y: -3.423

Z: 0.000

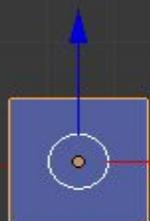
Top Ortho

Toggle Quard View» - разделит область 3D вида на 4 - вид спереди, справа, сверху и вид с перспективой.

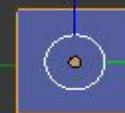


(1) Cube

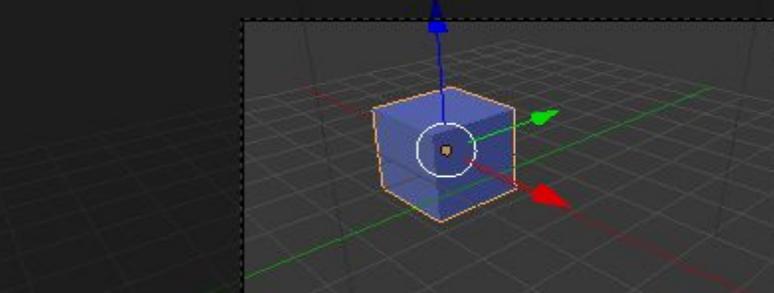
Front Ortho



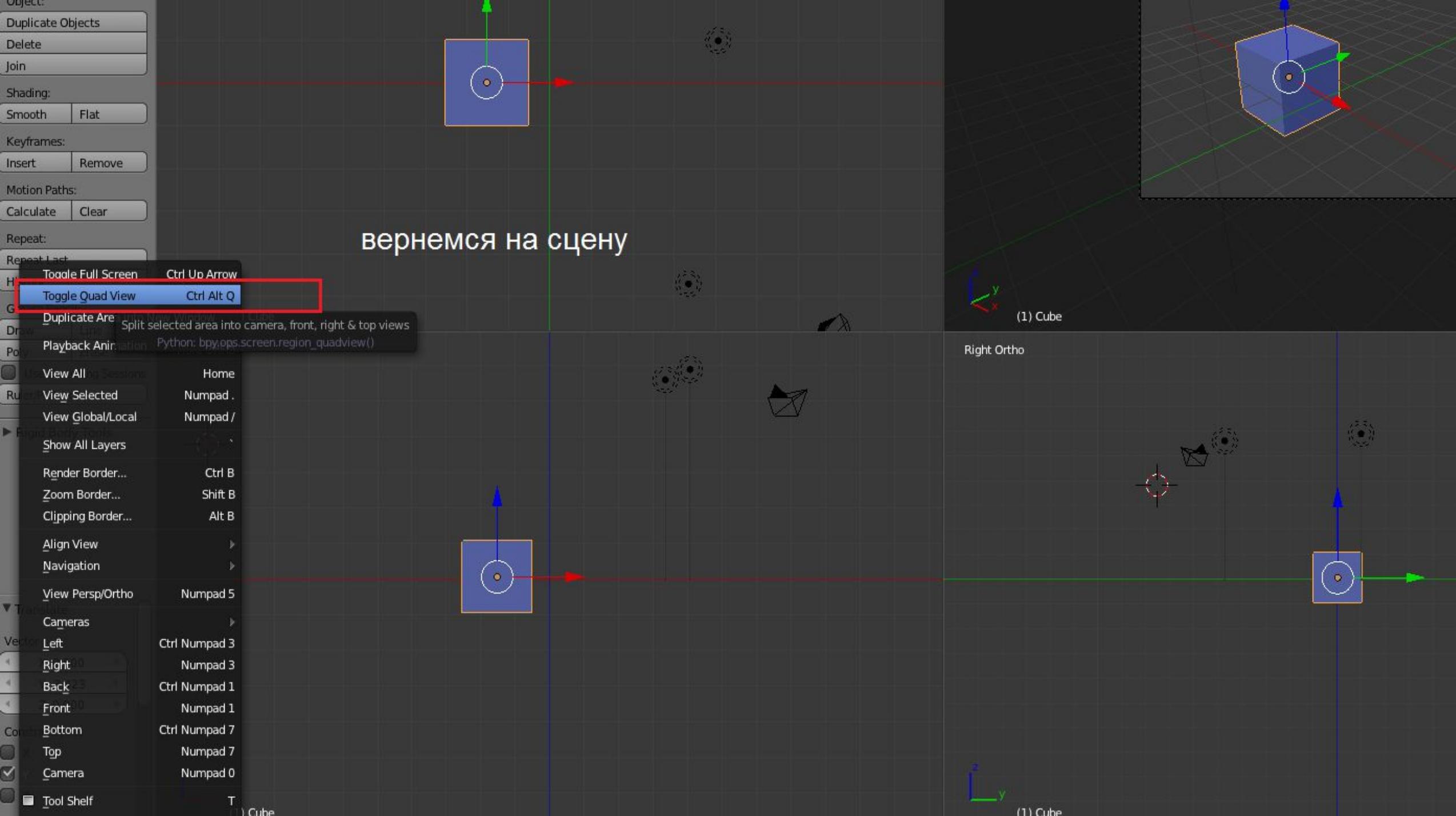
Right Ortho



(1) Cube



The sidebar of the Blender interface, showing various toolshelves and panels. The top part shows the Outliner and Properties panels. The middle part shows the Properties panel for the selected object (Cube). The bottom part shows the Properties panel for the active material (Material.01).



вернемся на сцену

- Toggle Full Screen `Ctrl Up Arrow`
- Toggle Quad View `Ctrl Alt Q`**
- Duplicate Area `Split selected area into camera, front, right & top views`
- Playback Animation `Python: bpy.ops.screen.region_quadview()`

- View All `Home`
- View Selected `Numpad .`
- View Global/Local `Numpad /`
- Show All Layers
- Render Border... `Ctrl B`
- Zoom Border... `Shift B`
- Clipping Border... `Alt B`
- Align View
- Navigation
- View Persp/Ortho `Numpad 5`
- Cameras
- Left `Ctrl Numpad 3`
- Right `Numpad 3`
- Back `Ctrl Numpad 1`
- Front `Numpad 1`
- Bottom `Ctrl Numpad 7`
- Top `Numpad 7`
- Camera `Numpad 0`
- Tool Shelf `T`

(1) Cube

Right Ortho

(1) Cube

- ▼ Object
- ▼ Mesh
- Curve
- Surface
- Metaball
- Text
- Armature
- Lattice
- Empty
- Speaker
- Camera
- Lamp
- Force Field
- Group Instance

- Plane
- Cube
- Circle
- UV Sphere
- Icosphere
- Cylinder
- Cone
- Grid
- Monkey
- Torus

Construct a cylinder mesh
Python: bpy.ops.mesh.primitive_cylinder_add()

добавим меш

Insert Remove

Motion Paths:

Calculate Clear

Repeat:

Repeat Last

History...

Grease Pencil:

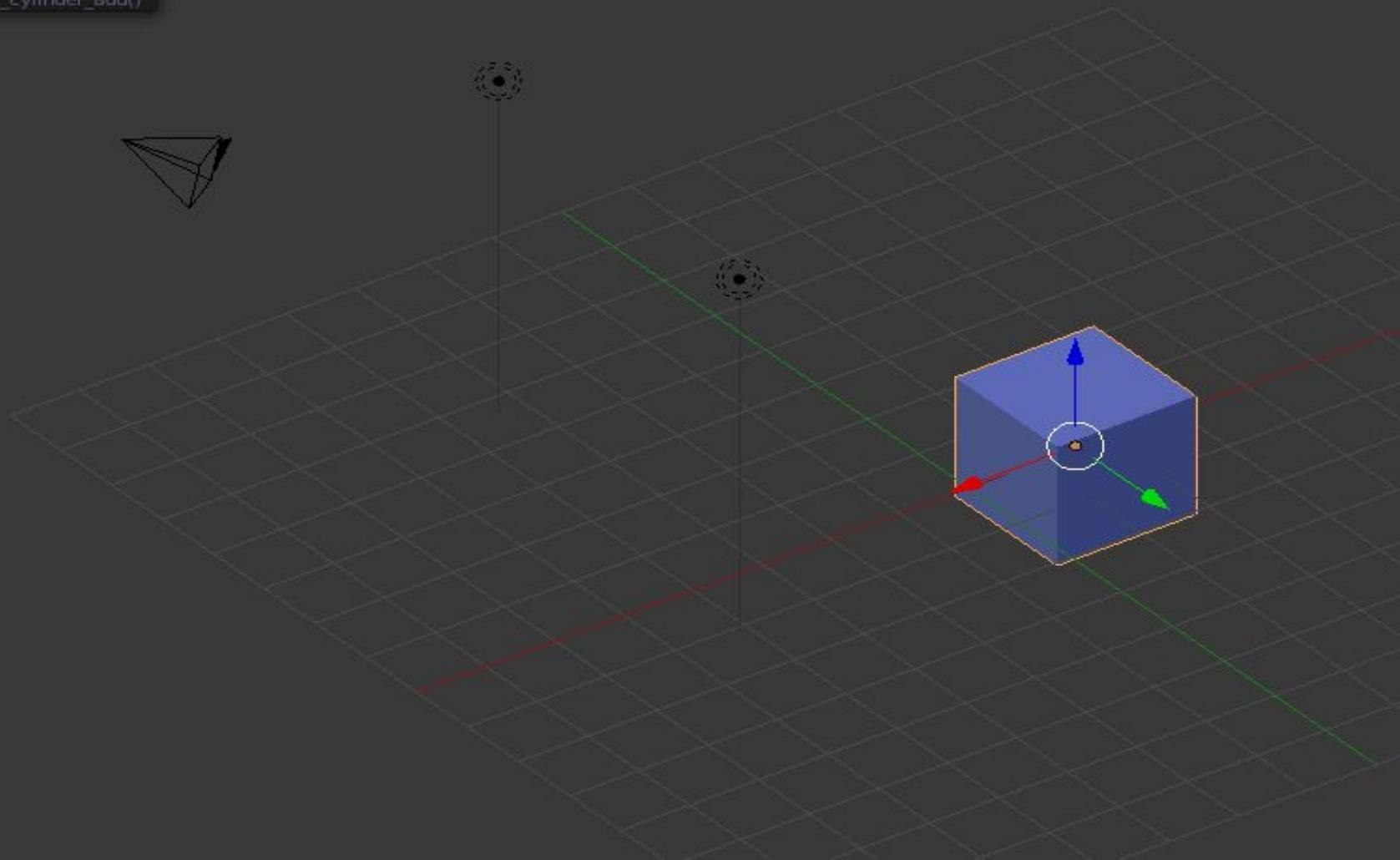
Draw Line

Poly Erase

Use Sketching Sessions

Ruler/Protractor

► Rigid Body Tools



Object Tools

Transform:

Translate

Rotate

Scale

Origin

Object:

Duplicate Objects

Delete

Join

Shading:

Smooth

Flat

Keyframes:

Insert

Remove

Motion Paths:

Calculate

Clear

Repeat:

Repeat Last

History...

Grease Pencil:

Draw

Line

Poly

Erase

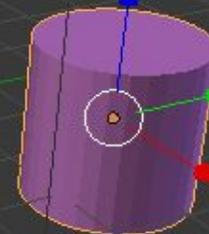
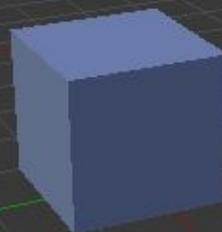
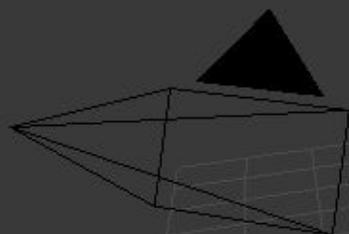
 Use Sketching Sessions

Ruler/Protractor

Rigid Body Tools

New Material

User Persp



ПОМЕНЯЙТЕ ЦВЕТ

Перейдите во вкладку

Toggle Quad View

Ctrl Alt Q



Material



RGB

R 0.80

G 0.26

B 0.79

Int

Specula

Int

Shadin

File Add Render Window Help Default Scene Blender Render v2.66.5 | Verts:72 | Faces:40 | Tris:136 | Objects:1/4 | Lamps:0/1 | Mem:9.94M (0.73M) | Camera

Object Tools

Transform:

Translate

Rotate

Scale

Origin

Object:

Duplicate Objects

Delete

Join

Keyframes:

Insert Remove

Motion Paths:

Calculate Clear

Repeat:

Repeat Last

History...

Grease Pencil:

Draw Line

Poly Erase

Use Sketching Sessions

Ruler/Protractor

Rigid Body Tools

Translate

Vector

X: 0.000

Y: 0.000

Z: 0.693

Top Ortho

Camera Persp

Front Ortho

Right Ortho

(1) Camera

(1) Camera

при необходимости передвиньте камеру

Scene

- RenderLayers
- World
- Camera
- Cube
- Cylinder
- Lamp

Camera

Lens

Perspective

Focal Length: 35.000

Shift:

X: 0.000

Y: 0.000

Camera

Camera Presets

Sensor:

Size: 32.00

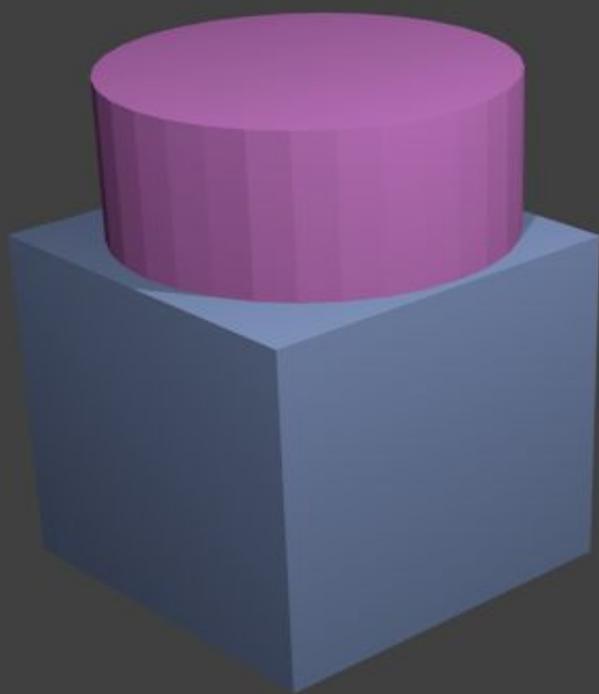
Depth of Field

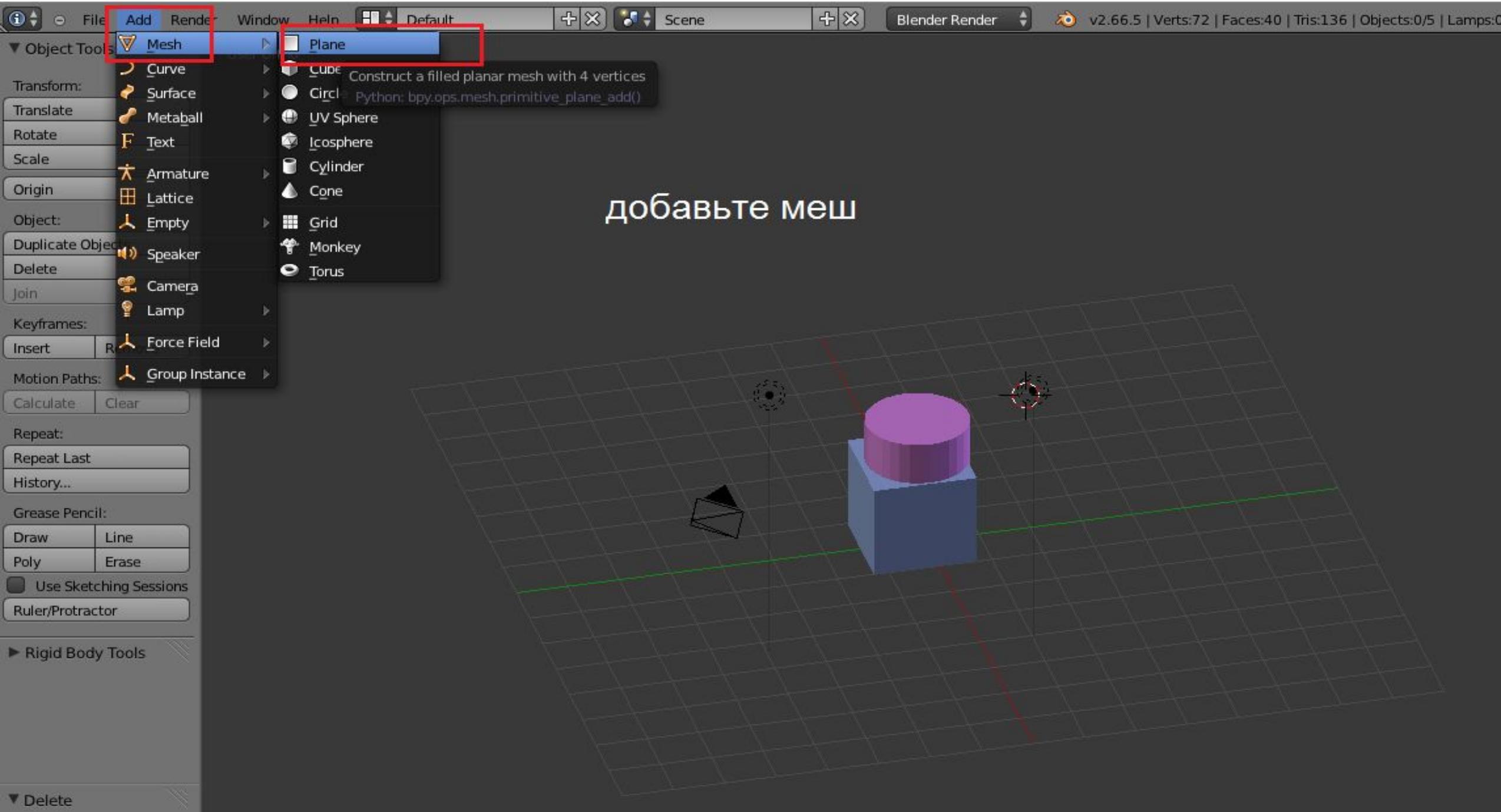
Focus:

Display

- Limits
- Mist
- Safe Areas
- Sensor

выполните рендеринг





Origin

Object:

Duplicate Objects

Delete

In

Shading:

Smooth Flat

Keyframes:

Insert Remove

Motion Paths:

Calculate Clear

Repeat:

Repeat Last

History...

Increase Pencil:

Draw Line

Erase

Use Sketching Sessions

Ruler/Protractor

Rigid Body Tools

Resize

Factor

X: 1.205

Y: 1.205

Z: 1.205

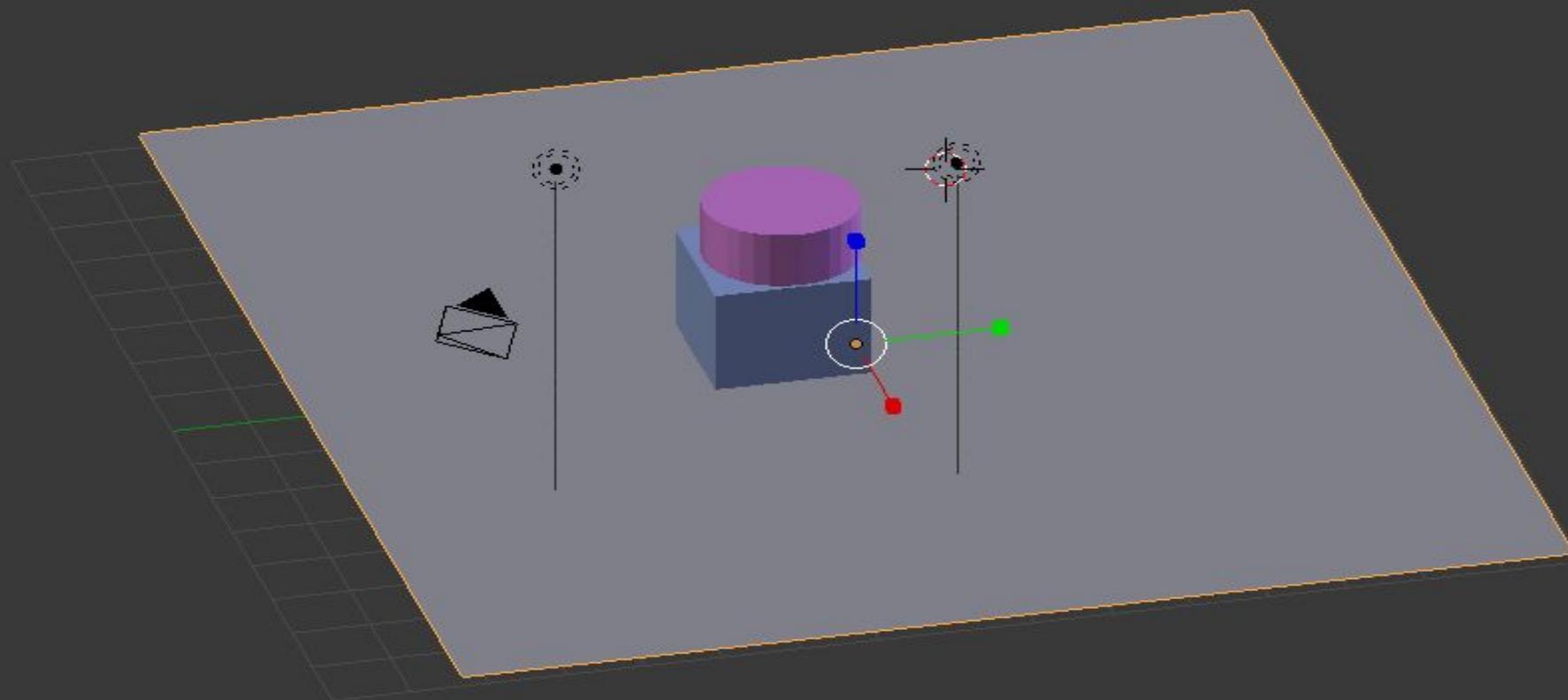
Constraint Axis

X

Y

Z

Orientation

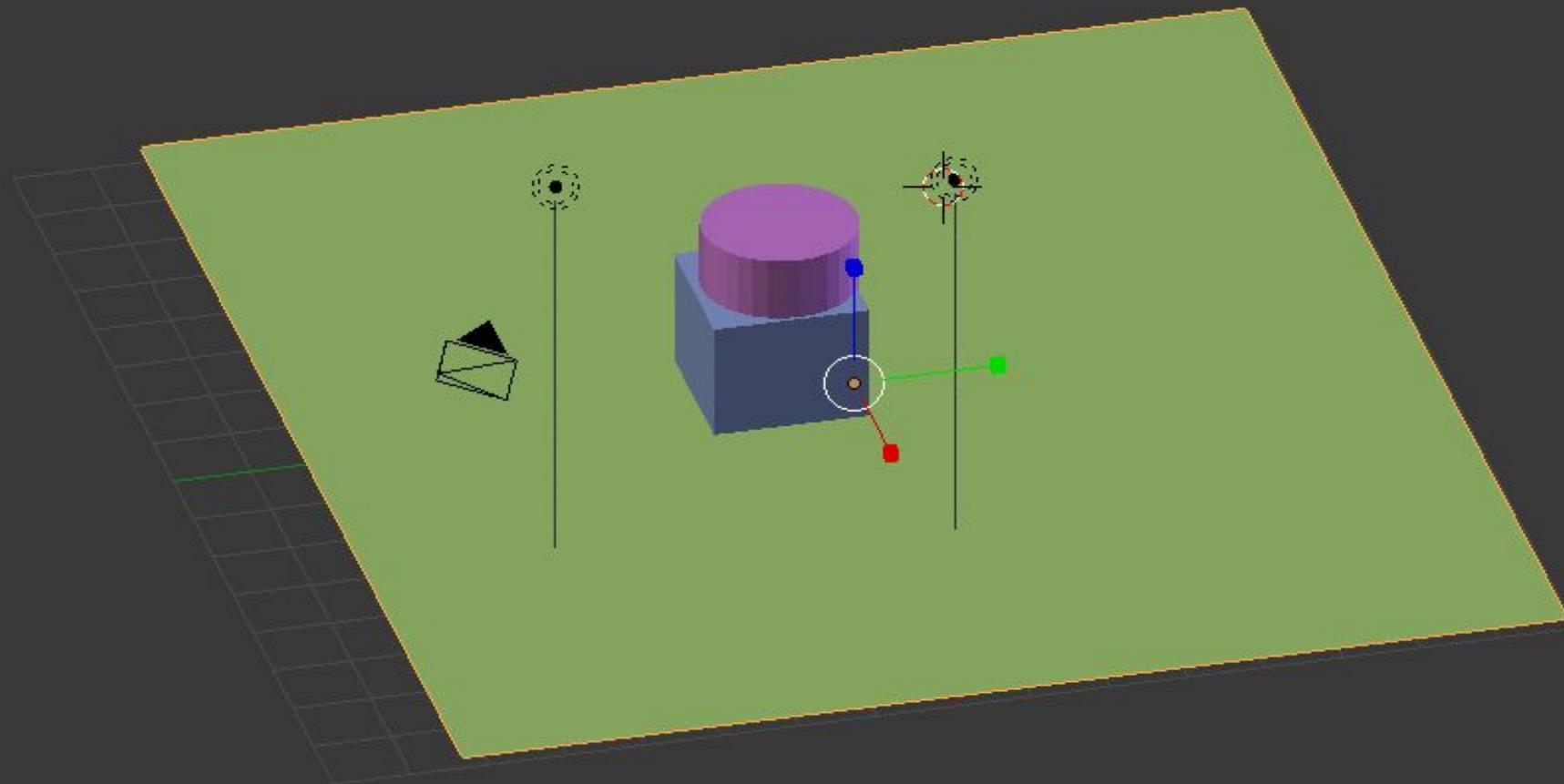


увеличьте меш

View Select Object Object Mode Global

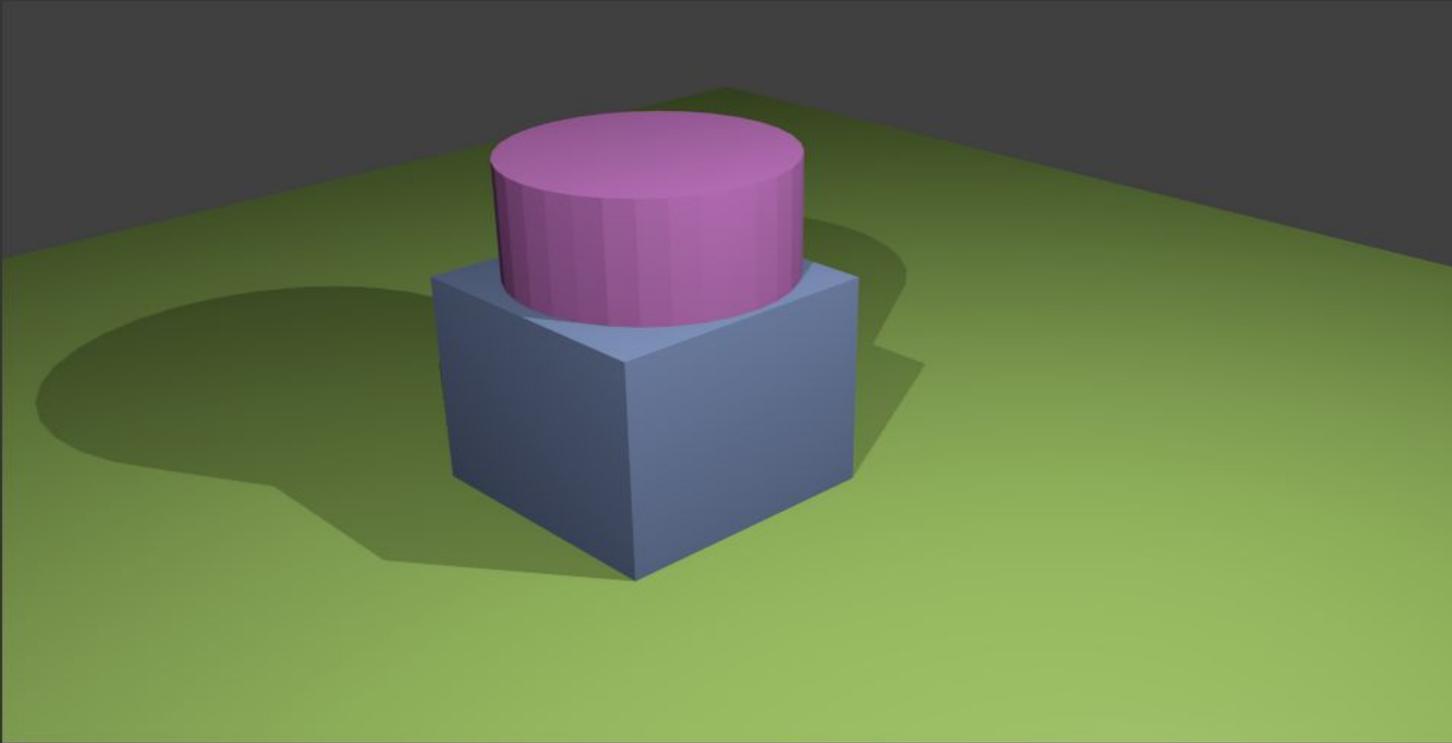
Scale manipulator - Shift-Click for multiple modes

ИЗМЕНИТЕ ЦВЕТ



- Translate
- Rotate
- Scale
- Origin
- Select
- Duplicate Objects
- Delete
- Binding:
- Smooth
- Flat
- Frames:
- Insert
- Remove
- Section Paths:
- Calculate
- Clear
- Heat:
- Heat Last
- History...
- Base Pencil:
- Draw
- Line
- Erase
- Use Sketching Sessions
- Eraser/Protractor
- Rigid Body Tools
- New Material

Frame:1 Ve:76 Fa:99 La:2 Mem:15.15M (12.61M, Peak 39.67M) Time:00:01.40



Scene

- RenderLayers
- World
- Camera
- Cube
- Cylinder
- Lamp

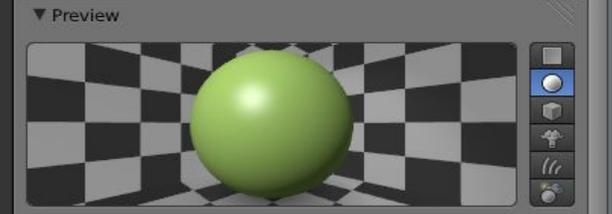
Plane

- Material.002

Material.002

Material.002

Surface Wire Volume Halo



Diffuse

Lambert

Intensity: 0.800

Ramp

Specular

CookTorr

Intensity: 0.500

Ramp

Hardness: 50

Shading

Emit: 0.00

Ambient: 1.000

Translucency: 0.000

Shadeless

Tangent Shading

Cubic Interpolation

Transparency

Mask Z Transparency Raytrace

Alpha: 1.000

Specular: 1.000

Fresnel: 0.000

Blend: 1.250

Mirror

View Image Render Result F View Slot 1 RenderLayer Combined

Timeline: -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280

View Marker Frame Playback Start: 1 End: 250 1 No Sync