# Canvas cheatsheet

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## Getting the context

```
var canvas = document.getElementById('c')
var c = canvas.getContext('2d')
```

## Basic drawing

```
// x = 10, y = 20, width = 200, height = 100
c.fillStyle = '#ff0000'
c.strokeStyle = '#ff00ff'


c.lineWidth = 5
c.lineCap = 'round'


c.fillRect(10, 20, 200, 100)


c.stroke()
c.fill()
```

## Saving and restoring

```
c.save()


c.restore()
```

Saves: `strokeStyle` `fillStyle` `globalAlpha` `lineWidth` `lineCap` `lineJoin` `miterLimit` `shadowOffsetX` `shadowOffsetY` `shadowBlur` `shadowColor` `globalCompositeOperation`, Transformations (`translate` `rotate` `scale` `transform` `setTransform`), Clipping path

## Animation

```
onframe: function() {
  c.clearRect(0, 0, w, h)
}
```

## Transformations

```
c.translate(0, 0)
c.rotate(Math.PI*2/5)
c.scale(1.0, 1.0)
```

To rotate along origin:

```
c.translate(ox, oy)
c.rotate(theta)
c.translate(-ox, -oy)
```

To scale along origin:

```
c.translate(-ox*x, -oy*y)
c.scale(x, y)
c.translate(ox/x, oy/y)
```

See MDN: Transformations.

## Image drawing

```
c.drawImage(image, dx, dy, [dw, dh]);
/* image can be HTML Image/Canvas/Video */
```

See MDN: Images.

## Colors, styles shadows

```
c.strokeStyle = '#ff00ff';
c.fillStyle = '#ff00ff';


c.shadowOffsetX = 0;
c.shadowOffsetY = 0;
c.shadowOffsetBlur = 3.0;
c.shadowColor = 'rgba(0,0,0,0.2)';
```

See MDN: Styles

## Gradients

```
gr = c.createLinearGradient(x0,y0,x1,y1)
gr = c.createRadialGradient(x0,y0,r0,x1,y1,r1)
pat = c.createPattern(image, 'repeat-x')


c.fillStyle = gr
```

## Drawing

```
c.beginPath()
c.moveTo(x,y)
c.lineTo(x,y)
c.quadraticCurveTo(cpx,cpy,x,y)
c.bezierCurveTo(cp1x,cp1y,cp2x,cp2y)
c.arcTo(...)
c.arc(...)
c.closePath()
```

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