| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | [**Class**](http://docs.google.com/java/awt/geom/Point2D.html) | **Use** | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PREV   NEXT | [**FRAMES**](http://docs.google.com/index.html?java/awt/geom//class-usePoint2D.html)    [**NO FRAMES**](http://docs.google.com/Point2D.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |

**Uses of Class**

**java.awt.geom.Point2D**

| Packages that use [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
| --- | --- |
| [**java.awt**](#3znysh7) | Contains all of the classes for creating user interfaces and for painting graphics and images. |
| [**java.awt.font**](#2et92p0) | Provides classes and interface relating to fonts. |
| [**java.awt.geom**](#tyjcwt) | Provides the Java 2D classes for defining and performing operations on objects related to two-dimensional geometry. |
| [**java.awt.image**](#3dy6vkm) | Provides classes for creating and modifying images. |

| Uses of [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) in [java.awt](http://docs.google.com/java/awt/package-summary.html) | |
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| Subclasses of [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) in [java.awt](http://docs.google.com/java/awt/package-summary.html) | |
| --- | --- |
| class | [**Point**](http://docs.google.com/java/awt/Point.html)            A point representing a location in (x,y) coordinate space, specified in integer precision. |

| Methods in [java.awt](http://docs.google.com/java/awt/package-summary.html) that return [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
| --- | --- |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **RadialGradientPaint.**[**getCenterPoint**](http://docs.google.com/java/awt/RadialGradientPaint.html#getCenterPoint())()            Returns a copy of the center point of the radial gradient. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **LinearGradientPaint.**[**getEndPoint**](http://docs.google.com/java/awt/LinearGradientPaint.html#getEndPoint())()            Returns a copy of the end point of the gradient axis. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **RadialGradientPaint.**[**getFocusPoint**](http://docs.google.com/java/awt/RadialGradientPaint.html#getFocusPoint())()            Returns a copy of the end point of the gradient axis. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **GradientPaint.**[**getPoint1**](http://docs.google.com/java/awt/GradientPaint.html#getPoint1())()            Returns a copy of the point P1 that anchors the first color. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **GradientPaint.**[**getPoint2**](http://docs.google.com/java/awt/GradientPaint.html#getPoint2())()            Returns a copy of the point P2 which anchors the second color. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **LinearGradientPaint.**[**getStartPoint**](http://docs.google.com/java/awt/LinearGradientPaint.html#getStartPoint())()            Returns a copy of the start point of the gradient axis. |

| Methods in [java.awt](http://docs.google.com/java/awt/package-summary.html) with parameters of type [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
| --- | --- |
| boolean | **Polygon.**[**contains**](http://docs.google.com/java/awt/Polygon.html#contains(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if a specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) is inside the boundary of the Shape. |
| boolean | **Shape.**[**contains**](http://docs.google.com/java/awt/Shape.html#contains(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if a specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) is inside the boundary of the Shape. |

| Constructors in [java.awt](http://docs.google.com/java/awt/package-summary.html) with parameters of type [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
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| [**GradientPaint**](http://docs.google.com/java/awt/GradientPaint.html#GradientPaint(java.awt.geom.Point2D,%20java.awt.Color,%20java.awt.geom.Point2D,%20java.awt.Color))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt1, [Color](http://docs.google.com/java/awt/Color.html) color1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt2, [Color](http://docs.google.com/java/awt/Color.html) color2)            Constructs a simple acyclic GradientPaint object. |
| [**GradientPaint**](http://docs.google.com/java/awt/GradientPaint.html#GradientPaint(java.awt.geom.Point2D,%20java.awt.Color,%20java.awt.geom.Point2D,%20java.awt.Color,%20boolean))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt1, [Color](http://docs.google.com/java/awt/Color.html) color1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt2, [Color](http://docs.google.com/java/awt/Color.html) color2, boolean cyclic)            Constructs either a cyclic or acyclic GradientPaint object depending on the boolean parameter. |
| [**LinearGradientPaint**](http://docs.google.com/java/awt/LinearGradientPaint.html#LinearGradientPaint(java.awt.geom.Point2D,%20java.awt.geom.Point2D,%20float%5B%5D,%20java.awt.Color%5B%5D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) start, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) end, float[] fractions, [Color](http://docs.google.com/java/awt/Color.html)[] colors)            Constructs a LinearGradientPaint with a default NO\_CYCLE repeating method and SRGB color space. |
| [**LinearGradientPaint**](http://docs.google.com/java/awt/LinearGradientPaint.html#LinearGradientPaint(java.awt.geom.Point2D,%20java.awt.geom.Point2D,%20float%5B%5D,%20java.awt.Color%5B%5D,%20java.awt.MultipleGradientPaint.CycleMethod))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) start, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) end, float[] fractions, [Color](http://docs.google.com/java/awt/Color.html)[] colors, [MultipleGradientPaint.CycleMethod](http://docs.google.com/java/awt/MultipleGradientPaint.CycleMethod.html) cycleMethod)            Constructs a LinearGradientPaint with a default SRGB color space. |
| [**LinearGradientPaint**](http://docs.google.com/java/awt/LinearGradientPaint.html#LinearGradientPaint(java.awt.geom.Point2D,%20java.awt.geom.Point2D,%20float%5B%5D,%20java.awt.Color%5B%5D,%20java.awt.MultipleGradientPaint.CycleMethod,%20java.awt.MultipleGradientPaint.ColorSpaceType,%20java.awt.geom.AffineTransform))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) start, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) end, float[] fractions, [Color](http://docs.google.com/java/awt/Color.html)[] colors, [MultipleGradientPaint.CycleMethod](http://docs.google.com/java/awt/MultipleGradientPaint.CycleMethod.html) cycleMethod, [MultipleGradientPaint.ColorSpaceType](http://docs.google.com/java/awt/MultipleGradientPaint.ColorSpaceType.html) colorSpace, [AffineTransform](http://docs.google.com/java/awt/geom/AffineTransform.html) gradientTransform)            Constructs a LinearGradientPaint. |
| [**RadialGradientPaint**](http://docs.google.com/java/awt/RadialGradientPaint.html#RadialGradientPaint(java.awt.geom.Point2D,%20float,%20float%5B%5D,%20java.awt.Color%5B%5D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) center, float radius, float[] fractions, [Color](http://docs.google.com/java/awt/Color.html)[] colors)            Constructs a RadialGradientPaint with a default NO\_CYCLE repeating method and SRGB color space, using the center as the focus point. |
| [**RadialGradientPaint**](http://docs.google.com/java/awt/RadialGradientPaint.html#RadialGradientPaint(java.awt.geom.Point2D,%20float,%20float%5B%5D,%20java.awt.Color%5B%5D,%20java.awt.MultipleGradientPaint.CycleMethod))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) center, float radius, float[] fractions, [Color](http://docs.google.com/java/awt/Color.html)[] colors, [MultipleGradientPaint.CycleMethod](http://docs.google.com/java/awt/MultipleGradientPaint.CycleMethod.html) cycleMethod)            Constructs a RadialGradientPaint with a default SRGB color space, using the center as the focus point. |
| [**RadialGradientPaint**](http://docs.google.com/java/awt/RadialGradientPaint.html#RadialGradientPaint(java.awt.geom.Point2D,%20float,%20java.awt.geom.Point2D,%20float%5B%5D,%20java.awt.Color%5B%5D,%20java.awt.MultipleGradientPaint.CycleMethod))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) center, float radius, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) focus, float[] fractions, [Color](http://docs.google.com/java/awt/Color.html)[] colors, [MultipleGradientPaint.CycleMethod](http://docs.google.com/java/awt/MultipleGradientPaint.CycleMethod.html) cycleMethod)            Constructs a RadialGradientPaint with a default SRGB color space. |
| [**RadialGradientPaint**](http://docs.google.com/java/awt/RadialGradientPaint.html#RadialGradientPaint(java.awt.geom.Point2D,%20float,%20java.awt.geom.Point2D,%20float%5B%5D,%20java.awt.Color%5B%5D,%20java.awt.MultipleGradientPaint.CycleMethod,%20java.awt.MultipleGradientPaint.ColorSpaceType,%20java.awt.geom.AffineTransform))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) center, float radius, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) focus, float[] fractions, [Color](http://docs.google.com/java/awt/Color.html)[] colors, [MultipleGradientPaint.CycleMethod](http://docs.google.com/java/awt/MultipleGradientPaint.CycleMethod.html) cycleMethod, [MultipleGradientPaint.ColorSpaceType](http://docs.google.com/java/awt/MultipleGradientPaint.ColorSpaceType.html) colorSpace, [AffineTransform](http://docs.google.com/java/awt/geom/AffineTransform.html) gradientTransform)            Constructs a RadialGradientPaint. |

| Uses of [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) in [java.awt.font](http://docs.google.com/java/awt/font/package-summary.html) | |
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| Methods in [java.awt.font](http://docs.google.com/java/awt/font/package-summary.html) that return [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
| --- | --- |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **GlyphVector.**[**getGlyphPosition**](http://docs.google.com/java/awt/font/GlyphVector.html#getGlyphPosition(int))(int glyphIndex)            Returns the position of the specified glyph relative to the origin of this GlyphVector. |

| Methods in [java.awt.font](http://docs.google.com/java/awt/font/package-summary.html) with parameters of type [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
| --- | --- |
| void | **TextLayout.**[**hitToPoint**](http://docs.google.com/java/awt/font/TextLayout.html#hitToPoint(java.awt.font.TextHitInfo,%20java.awt.geom.Point2D))([TextHitInfo](http://docs.google.com/java/awt/font/TextHitInfo.html) hit, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) point)            Convert a hit to a point in standard coordinates. |
| abstract  void | **LayoutPath.**[**pathToPoint**](http://docs.google.com/java/awt/font/LayoutPath.html#pathToPoint(java.awt.geom.Point2D,%20boolean,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) location, boolean preceding, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) point)            Convert a location relative to the path to a point in user coordinates. |
| abstract  boolean | **LayoutPath.**[**pointToPath**](http://docs.google.com/java/awt/font/LayoutPath.html#pointToPath(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) point, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) location)            Convert a point in user space to a location relative to the path. |
| abstract  void | **GlyphVector.**[**setGlyphPosition**](http://docs.google.com/java/awt/font/GlyphVector.html#setGlyphPosition(int,%20java.awt.geom.Point2D))(int glyphIndex, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) newPos)            Sets the position of the specified glyph within this GlyphVector. |

| Uses of [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) in [java.awt.geom](http://docs.google.com/java/awt/geom/package-summary.html) | |
| --- | --- |

| Subclasses of [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) in [java.awt.geom](http://docs.google.com/java/awt/geom/package-summary.html) | |
| --- | --- |
| static class | [**Point2D.Double**](http://docs.google.com/java/awt/geom/Point2D.Double.html)            The Double class defines a point specified in double precision. |
| static class | [**Point2D.Float**](http://docs.google.com/java/awt/geom/Point2D.Float.html)            The Float class defines a point specified in float precision. |

| Methods in [java.awt.geom](http://docs.google.com/java/awt/geom/package-summary.html) that return [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
| --- | --- |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **AffineTransform.**[**deltaTransform**](http://docs.google.com/java/awt/geom/AffineTransform.html#deltaTransform(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptSrc, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptDst)            Transforms the relative distance vector specified by ptSrc and stores the result in ptDst. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.**[**getCtrlP1**](http://docs.google.com/java/awt/geom/CubicCurve2D.html#getCtrlP1())()            Returns the first control point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.Float.**[**getCtrlP1**](http://docs.google.com/java/awt/geom/CubicCurve2D.Float.html#getCtrlP1())()            Returns the first control point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.Double.**[**getCtrlP1**](http://docs.google.com/java/awt/geom/CubicCurve2D.Double.html#getCtrlP1())()            Returns the first control point. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.**[**getCtrlP2**](http://docs.google.com/java/awt/geom/CubicCurve2D.html#getCtrlP2())()            Returns the second control point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.Float.**[**getCtrlP2**](http://docs.google.com/java/awt/geom/CubicCurve2D.Float.html#getCtrlP2())()            Returns the second control point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.Double.**[**getCtrlP2**](http://docs.google.com/java/awt/geom/CubicCurve2D.Double.html#getCtrlP2())()            Returns the second control point. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.**[**getCtrlPt**](http://docs.google.com/java/awt/geom/QuadCurve2D.html#getCtrlPt())()            Returns the control point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.Float.**[**getCtrlPt**](http://docs.google.com/java/awt/geom/QuadCurve2D.Float.html#getCtrlPt())()            Returns the control point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.Double.**[**getCtrlPt**](http://docs.google.com/java/awt/geom/QuadCurve2D.Double.html#getCtrlPt())()            Returns the control point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Path2D.**[**getCurrentPoint**](http://docs.google.com/java/awt/geom/Path2D.html#getCurrentPoint())()            Returns the coordinates most recently added to the end of the path as a [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) object. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Arc2D.**[**getEndPoint**](http://docs.google.com/java/awt/geom/Arc2D.html#getEndPoint())()            Returns the ending point of the arc. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.**[**getP1**](http://docs.google.com/java/awt/geom/QuadCurve2D.html#getP1())()            Returns the start point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.Float.**[**getP1**](http://docs.google.com/java/awt/geom/QuadCurve2D.Float.html#getP1())()            Returns the start point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.Double.**[**getP1**](http://docs.google.com/java/awt/geom/QuadCurve2D.Double.html#getP1())()            Returns the start point. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.**[**getP1**](http://docs.google.com/java/awt/geom/CubicCurve2D.html#getP1())()            Returns the start point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.Float.**[**getP1**](http://docs.google.com/java/awt/geom/CubicCurve2D.Float.html#getP1())()            Returns the start point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.Double.**[**getP1**](http://docs.google.com/java/awt/geom/CubicCurve2D.Double.html#getP1())()            Returns the start point. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Line2D.**[**getP1**](http://docs.google.com/java/awt/geom/Line2D.html#getP1())()            Returns the start Point2D of this Line2D. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Line2D.Float.**[**getP1**](http://docs.google.com/java/awt/geom/Line2D.Float.html#getP1())()            Returns the start Point2D of this Line2D. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Line2D.Double.**[**getP1**](http://docs.google.com/java/awt/geom/Line2D.Double.html#getP1())()            Returns the start Point2D of this Line2D. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.**[**getP2**](http://docs.google.com/java/awt/geom/QuadCurve2D.html#getP2())()            Returns the end point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.Float.**[**getP2**](http://docs.google.com/java/awt/geom/QuadCurve2D.Float.html#getP2())()            Returns the end point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **QuadCurve2D.Double.**[**getP2**](http://docs.google.com/java/awt/geom/QuadCurve2D.Double.html#getP2())()            Returns the end point. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.**[**getP2**](http://docs.google.com/java/awt/geom/CubicCurve2D.html#getP2())()            Returns the end point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.Float.**[**getP2**](http://docs.google.com/java/awt/geom/CubicCurve2D.Float.html#getP2())()            Returns the end point. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **CubicCurve2D.Double.**[**getP2**](http://docs.google.com/java/awt/geom/CubicCurve2D.Double.html#getP2())()            Returns the end point. |
| abstract  [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Line2D.**[**getP2**](http://docs.google.com/java/awt/geom/Line2D.html#getP2())()            Returns the end Point2D of this Line2D. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Line2D.Float.**[**getP2**](http://docs.google.com/java/awt/geom/Line2D.Float.html#getP2())()            Returns the end Point2D of this Line2D. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Line2D.Double.**[**getP2**](http://docs.google.com/java/awt/geom/Line2D.Double.html#getP2())()            Returns the end Point2D of this Line2D. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **Arc2D.**[**getStartPoint**](http://docs.google.com/java/awt/geom/Arc2D.html#getStartPoint())()            Returns the starting point of the arc. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **AffineTransform.**[**inverseTransform**](http://docs.google.com/java/awt/geom/AffineTransform.html#inverseTransform(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptSrc, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptDst)            Inverse transforms the specified ptSrc and stores the result in ptDst. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **AffineTransform.**[**transform**](http://docs.google.com/java/awt/geom/AffineTransform.html#transform(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptSrc, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptDst)            Transforms the specified ptSrc and stores the result in ptDst. |

| Methods in [java.awt.geom](http://docs.google.com/java/awt/geom/package-summary.html) with parameters of type [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
| --- | --- |
| void | **Rectangle2D.**[**add**](http://docs.google.com/java/awt/geom/Rectangle2D.html#add(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt)            Adds the Point2D object pt to this Rectangle2D. |
| static boolean | **Path2D.**[**contains**](http://docs.google.com/java/awt/geom/Path2D.html#contains(java.awt.geom.PathIterator,%20java.awt.geom.Point2D))([PathIterator](http://docs.google.com/java/awt/geom/PathIterator.html) pi, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if the specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) is inside the closed boundary of the specified [PathIterator](http://docs.google.com/java/awt/geom/PathIterator.html). |
| boolean | **QuadCurve2D.**[**contains**](http://docs.google.com/java/awt/geom/QuadCurve2D.html#contains(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if a specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) is inside the boundary of the Shape. |
| boolean | **CubicCurve2D.**[**contains**](http://docs.google.com/java/awt/geom/CubicCurve2D.html#contains(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if a specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) is inside the boundary of the Shape. |
| boolean | **Area.**[**contains**](http://docs.google.com/java/awt/geom/Area.html#contains(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if a specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) is inside the boundary of the Shape. |
| boolean | **Path2D.**[**contains**](http://docs.google.com/java/awt/geom/Path2D.html#contains(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if a specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) is inside the boundary of the Shape. |
| boolean | **Line2D.**[**contains**](http://docs.google.com/java/awt/geom/Line2D.html#contains(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if a given Point2D is inside the boundary of this Line2D. |
| boolean | **RectangularShape.**[**contains**](http://docs.google.com/java/awt/geom/RectangularShape.html#contains(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Tests if a specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) is inside the boundary of the Shape. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **AffineTransform.**[**deltaTransform**](http://docs.google.com/java/awt/geom/AffineTransform.html#deltaTransform(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptSrc, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptDst)            Transforms the relative distance vector specified by ptSrc and stores the result in ptDst. |
| double | **Point2D.**[**distance**](http://docs.google.com/java/awt/geom/Point2D.html#distance(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt)            Returns the distance from this Point2D to a specified Point2D. |
| double | **Point2D.**[**distanceSq**](http://docs.google.com/java/awt/geom/Point2D.html#distanceSq(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt)            Returns the square of the distance from this Point2D to a specified Point2D. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **AffineTransform.**[**inverseTransform**](http://docs.google.com/java/awt/geom/AffineTransform.html#inverseTransform(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptSrc, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptDst)            Inverse transforms the specified ptSrc and stores the result in ptDst. |
| int | **Rectangle2D.**[**outcode**](http://docs.google.com/java/awt/geom/Rectangle2D.html#outcode(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Determines where the specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) lies with respect to this Rectangle2D. |
| double | **Line2D.**[**ptLineDist**](http://docs.google.com/java/awt/geom/Line2D.html#ptLineDist(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt)            Returns the distance from a Point2D to this line. |
| double | **Line2D.**[**ptLineDistSq**](http://docs.google.com/java/awt/geom/Line2D.html#ptLineDistSq(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt)            Returns the square of the distance from a specified Point2D to this line. |
| double | **Line2D.**[**ptSegDist**](http://docs.google.com/java/awt/geom/Line2D.html#ptSegDist(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt)            Returns the distance from a Point2D to this line segment. |
| double | **Line2D.**[**ptSegDistSq**](http://docs.google.com/java/awt/geom/Line2D.html#ptSegDistSq(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) pt)            Returns the square of the distance from a Point2D to this line segment. |
| int | **Line2D.**[**relativeCCW**](http://docs.google.com/java/awt/geom/Line2D.html#relativeCCW(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Returns an indicator of where the specified Point2D lies with respect to this line segment. |
| void | **Arc2D.**[**setAngles**](http://docs.google.com/java/awt/geom/Arc2D.html#setAngles(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p2)            Sets the starting angle and angular extent of this arc using two points. |
| void | **Arc2D.**[**setAngleStart**](http://docs.google.com/java/awt/geom/Arc2D.html#setAngleStart(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Sets the starting angle of this arc to the angle that the specified point defines relative to the center of this arc. |
| void | **Arc2D.**[**setArc**](http://docs.google.com/java/awt/geom/Arc2D.html#setArc(java.awt.geom.Point2D,%20java.awt.geom.Dimension2D,%20double,%20double,%20int))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) loc, [Dimension2D](http://docs.google.com/java/awt/geom/Dimension2D.html) size, double angSt, double angExt, int closure)            Sets the location, size, angular extents, and closure type of this arc to the specified values. |
| void | **Arc2D.**[**setArcByTangent**](http://docs.google.com/java/awt/geom/Arc2D.html#setArcByTangent(java.awt.geom.Point2D,%20java.awt.geom.Point2D,%20java.awt.geom.Point2D,%20double))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p2, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p3, double radius)            Sets the position, bounds, and angular extents of this arc to the specified value. |
| void | **QuadCurve2D.**[**setCurve**](http://docs.google.com/java/awt/geom/QuadCurve2D.html#setCurve(java.awt.geom.Point2D%5B%5D,%20int))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html)[] pts, int offset)            Sets the location of the end points and control points of this QuadCurve2D to the coordinates of the Point2D objects at the specified offset in the specified array. |
| void | **CubicCurve2D.**[**setCurve**](http://docs.google.com/java/awt/geom/CubicCurve2D.html#setCurve(java.awt.geom.Point2D%5B%5D,%20int))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html)[] pts, int offset)            Sets the location of the end points and control points of this curve to the coordinates of the Point2D objects at the specified offset in the specified array. |
| void | **QuadCurve2D.**[**setCurve**](http://docs.google.com/java/awt/geom/QuadCurve2D.html#setCurve(java.awt.geom.Point2D,%20java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) cp, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p2)            Sets the location of the end points and control point of this QuadCurve2D to the specified Point2D coordinates. |
| void | **CubicCurve2D.**[**setCurve**](http://docs.google.com/java/awt/geom/CubicCurve2D.html#setCurve(java.awt.geom.Point2D,%20java.awt.geom.Point2D,%20java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) cp1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) cp2, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p2)            Sets the location of the end points and control points of this curve to the specified Point2D coordinates. |
| void | **RectangularShape.**[**setFrame**](http://docs.google.com/java/awt/geom/RectangularShape.html#setFrame(java.awt.geom.Point2D,%20java.awt.geom.Dimension2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) loc, [Dimension2D](http://docs.google.com/java/awt/geom/Dimension2D.html) size)            Sets the location and size of the framing rectangle of this Shape to the specified [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) and [Dimension2D](http://docs.google.com/java/awt/geom/Dimension2D.html), respectively. |
| void | **RectangularShape.**[**setFrameFromCenter**](http://docs.google.com/java/awt/geom/RectangularShape.html#setFrameFromCenter(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) center, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) corner)            Sets the framing rectangle of this Shape based on a specified center Point2D and corner Point2D. |
| void | **RectangularShape.**[**setFrameFromDiagonal**](http://docs.google.com/java/awt/geom/RectangularShape.html#setFrameFromDiagonal(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p2)            Sets the diagonal of the framing rectangle of this Shape based on two specified Point2D objects. |
| void | **Line2D.**[**setLine**](http://docs.google.com/java/awt/geom/Line2D.html#setLine(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p2)            Sets the location of the end points of this Line2D to the specified Point2D coordinates. |
| void | **Point2D.**[**setLocation**](http://docs.google.com/java/awt/geom/Point2D.html#setLocation(java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p)            Sets the location of this Point2D to the same coordinates as the specified Point2D object. |
| void | **AffineTransform.**[**transform**](http://docs.google.com/java/awt/geom/AffineTransform.html#transform(java.awt.geom.Point2D%5B%5D,%20int,%20java.awt.geom.Point2D%5B%5D,%20int,%20int))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html)[] ptSrc, int srcOff, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html)[] ptDst, int dstOff, int numPts)            Transforms an array of point objects by this transform. |
| void | **AffineTransform.**[**transform**](http://docs.google.com/java/awt/geom/AffineTransform.html#transform(java.awt.geom.Point2D%5B%5D,%20int,%20java.awt.geom.Point2D%5B%5D,%20int,%20int))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html)[] ptSrc, int srcOff, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html)[] ptDst, int dstOff, int numPts)            Transforms an array of point objects by this transform. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **AffineTransform.**[**transform**](http://docs.google.com/java/awt/geom/AffineTransform.html#transform(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptSrc, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) ptDst)            Transforms the specified ptSrc and stores the result in ptDst. |

| Constructors in [java.awt.geom](http://docs.google.com/java/awt/geom/package-summary.html) with parameters of type [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
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| [**Line2D.Double**](http://docs.google.com/java/awt/geom/Line2D.Double.html#Line2D.Double(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p2)            Constructs and initializes a Line2D from the specified Point2D objects. |
| [**Line2D.Float**](http://docs.google.com/java/awt/geom/Line2D.Float.html#Line2D.Float(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p1, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) p2)            Constructs and initializes a Line2D from the specified Point2D objects. |

| Uses of [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) in [java.awt.image](http://docs.google.com/java/awt/image/package-summary.html) | |
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| Methods in [java.awt.image](http://docs.google.com/java/awt/image/package-summary.html) that return [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
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| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **RescaleOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/RescaleOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **LookupOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/LookupOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **ConvolveOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/ConvolveOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **ColorConvertOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/ColorConvertOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **BandCombineOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/BandCombineOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the corresponding destination point given a point in the source Raster. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **RasterOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/RasterOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source Raster. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **AffineTransformOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/AffineTransformOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the corresponding destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **BufferedImageOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/BufferedImageOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the corresponding destination point given a point in the source image. |

| Methods in [java.awt.image](http://docs.google.com/java/awt/image/package-summary.html) with parameters of type [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | |
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| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **RescaleOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/RescaleOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **LookupOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/LookupOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **ConvolveOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/ConvolveOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **ColorConvertOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/ColorConvertOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **BandCombineOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/BandCombineOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the corresponding destination point given a point in the source Raster. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **RasterOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/RasterOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source Raster. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **AffineTransformOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/AffineTransformOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the corresponding destination point given a point in the source. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | **BufferedImageOp.**[**getPoint2D**](http://docs.google.com/java/awt/image/BufferedImageOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the corresponding destination point given a point in the source image. |

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | [**Class**](http://docs.google.com/java/awt/geom/Point2D.html) | **Use** | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PREV   NEXT | [**FRAMES**](http://docs.google.com/index.html?java/awt/geom//class-usePoint2D.html)    [**NO FRAMES**](http://docs.google.com/Point2D.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |

[Submit a bug or feature](http://bugs.sun.com/services/bugreport/index.jsp)

For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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