```
// Create an appropriate Shape object based on input.
// Part of class TestShape in Figure 4.7.
// The user types 'c', 's', or 'r' to indicate the shape
// and then provides dimensions when prompted.
// A zero-radius circle is returned for any error.

    private static Shape readShape( )
    {
        double rad;
        double len
        double wid;
        String oneLine;

        try
        {
            System.out.println( "Enter shape type:" );
            do
            {
                oneLine = in.readLine( );
            } while( oneLine.length( ) == 0 );

            switch( oneLine.charAt( 0 ) )
            {
              case 'c':
                System.out.println( "Enter radius: " );
                rad = Double.parseDouble( in.readLine( ) );
                return new Circle( rad );

              case 's':
                System.out.println( "Enter side: " );
                len = Double.parseDouble( in.readLine( ) );
                return new Square( len );

              case 'r':
                System.out.println( "Enter length and width "
                                  + "on separate lines: " );
                len = Double.parseDouble( in.readLine( ) );
                wid = Double.parseDouble( in.readLine( ) );
                return new Rectangle( len, wid );

              default:
                System.err.println( "Need c, r, or s" );
                return new Circle( 0 );
            }
        }
        catch( Exception e )
        {
            System.err.println( e );
            return new Circle( 0 );
        }
    }
```

Figure 4.8 Simple input routine for reading and returning a new Shape