1. How many bits/bytes are needed to store a color picture that is 300 pixels wide and 400 pixels high? Assume color is represented using the RGB technique and that no special compression technique is used. Express your answer as approximate number of KB or MB, etc., as appropriate. Show your work and fill in the answers below:

   \[ \text{\# pixels} \quad \underline{120,000} \quad 300 \times 400 = 120,000 \]

   \[ \text{\# bytes} \quad \underline{360 \text{ KB}} \quad 120,000 \times 3 = 360,000 \text{ bytes} \cong 360 \text{ KB} \]

   \[ \text{\# bits} \quad \underline{2.8 \text{ MBits}} \quad 360,000 \times 8 = 2,880,000 \text{ bits} \cong 2.8 \text{ MBits} \]

2. Fill in the missing numbers so that the following lines of code draw a smiley face:
   ```java
   page.setColor(Color.yellow);
   page.fillOval(50, 50, 40, 40); // face
   page.setColor(Color.black);
   page.drawArc(60, 70, 20, 10, 190, 160); // smile
   page.fillOval(60, 60, 5, 5); // left eye
   page.fillOval(80, 60, 5, 5); // right eye
   ```

3. Given the following declarations, what result is stored in each of the assignment statements below?
   ```java
   int num = 10;
   double val = 4.0;
   int iResult;
   double fResult;
   ```

   a. \[ iResult = 5 / num; \]
      \[ 0 \]

   b. \[ fResult = val * 3 / num; \]
      \[ 1.2 \]

   c. \[ fResult = (double) (5 / num); \]
      \[ 0.0 \]

   d. \[ fResult = val / num; \]
      \[ 0.4 \]
1. How many bits/bytes are needed to store a color picture that is 200 pixels wide and 300 pixels high? Assume color is represented using the RGB technique and that no special compression technique is used. Express your answer as approximate number of KB or MB, etc., as appropriate. Show your work and fill in the answers below:

\[
\begin{align*}
\# \text{ pixels} & \quad \underline{60000} & \quad 200 \times 300 = 60,000 \\
\# \text{ bytes} & \quad \underline{180 \ \text{KB}} & \quad 60,000 \times 3 = 180,000 \ \text{bytes} \cong 180 \ \text{KB} \\
\# \text{ bits} & \quad \underline{1.4 \ \text{MBits}} & \quad 180,000 \times 8 = 1,440,000 \ \text{bits} \cong 1.4 \ \text{MBits}
\end{align*}
\]

2. Two corners of a square drawn using the Java coordinate system have coordinates (10, 20) and (30, 40). What are the coordinates of the other two corners?

\[(10, 40) \text{ and } (30, 20)\]

3. Given the following declarations, what result is stored in each of the assignment statements below?

```java
int num = 4;
double val = 10.0;
int iResult;
double fResult;
```

a. `fResult = val / num;`
   
   \[2.5\]

b. `iResult = (int) (val / num);`
   
   \[2\]

c. `iResult = (int) (val / num * 100);`
   
   \[250\]

d. `fResult = (int) val / num * 100;`
   
   \[200\]