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:

\[
\begin{align*}
\text{# pixels} & \quad 60000 \\
\text{# bytes} & \quad 180 \text{ KB} \\
\text{# bits} & \quad 1.4\text{MBits}
\end{align*}
\]

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

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) and (30, 20)\}

3. Given the following declarations, what result is stored in each of the assignment statements below?
   \[
   \text{int num} = 4; \\
   \text{double val} = 10.0; \\
   \text{int iResult}; \\
   \text{double fResult};
   \]
   
   a. \( fResult = \text{val} / \text{num}; \) 
   
   \[2.5\]

   b. \( \text{iResult} = (\text{int}) (\text{val} / \text{num}); \) 
   
   \[2\]

   c. \( \text{iResult} = (\text{int}) (\text{val} / \text{num} \times 100); \) 
   
   \[250\]

   d. \( fResult = (\text{int}) \text{val} / \text{num} \times 100; \) 
   
   \[200\]
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:

   # pixels  120,000  300x400 = 120,000

   # bytes  360 KB  120,000 x 3 = 360,000 bytes ≅ 360 KB

   # bits  2.8MBits  360,000 x 8 = 2,880,000 bits ≅ 2.8 MBits

2. Fill in the missing numbers so that the following lines of code draw a smiley face:

   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?
   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