## Pre Calculus 11: HW Section 8.2 Solving Systems of Equations by Elimination

1. Solve each system by using elimination:

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<tr>
<td>i)</td>
<td>(2x + 3y = 18) &amp; (2x - 3y = -6)</td>
<td>(ii)</td>
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<td>iii)</td>
<td>(y = x^2 - 16x + 60)</td>
<td>(y = 12x - 55)</td>
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<td>v)</td>
<td>(2x - 5 = 3y) &amp; (2x^2 - 5x = y)</td>
<td>(vi)</td>
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2. The lines with equations $px + 3y = 15$ and $6x + qy = 30$ pass through the point $(4, -3)$. What is the value of $p+q$?

3. Line “A” passes through the points $(3,0)$ and $(-9,9)$ and line “B” passes through the points $(-5,0)$ and $(4,6)$. What is the intersection point between lines “A” and “B”?
4. The following system has (5, -3) as a solution. What are the values of “a” and “b”?

\[ax + by = -11\]
\[2ax - 3by = 8\]

5. In the diagram, “V” is the vertex of the parabola with equations \( y = -x^2 + 4x + 1 \). Points “A” and “B” are intersections between the parabola and the line \( y = -x + 1 \). Find the distance from point “A” to “B”.

6. The lines \( bx + y = 30 \) and \( x + by = c \) intersect at the point P(6,12), determine the value of “c”:

7. Determine all ordered pairs \((x,y)\) that satisfy the following system of equations:

\[x + y = 16\]
\[\frac{4}{7} = \frac{1}{x} + \frac{1}{y}\]
8. If \((x + 1)(x - 1) = 8\), then what is the value of \((x^2 + x)(x^2 - x)\)?

9. The line \(y = 2x + 2\) intersects the parabola \(y = x^2 - 3x + c\) at two points. One of these points is \((1,4)\). Determine the coordinates of the second point of intersection.

10. Solve the system:

\[
\begin{align*}
x^2 - xy + 8 &= 0 \\
x^2 - 8x + y &= 0
\end{align*}
\]
(b) The quadratic equation $x^2 + 6x + k = 0$ has two equal roots. What is the value of $k$?

(c) The line $y = 2x + 2$ intersects the parabola $y = x^2 - 3x + c$ at two points. One of these points is $(1,4)$. Determine the coordinates of the second point of intersection.