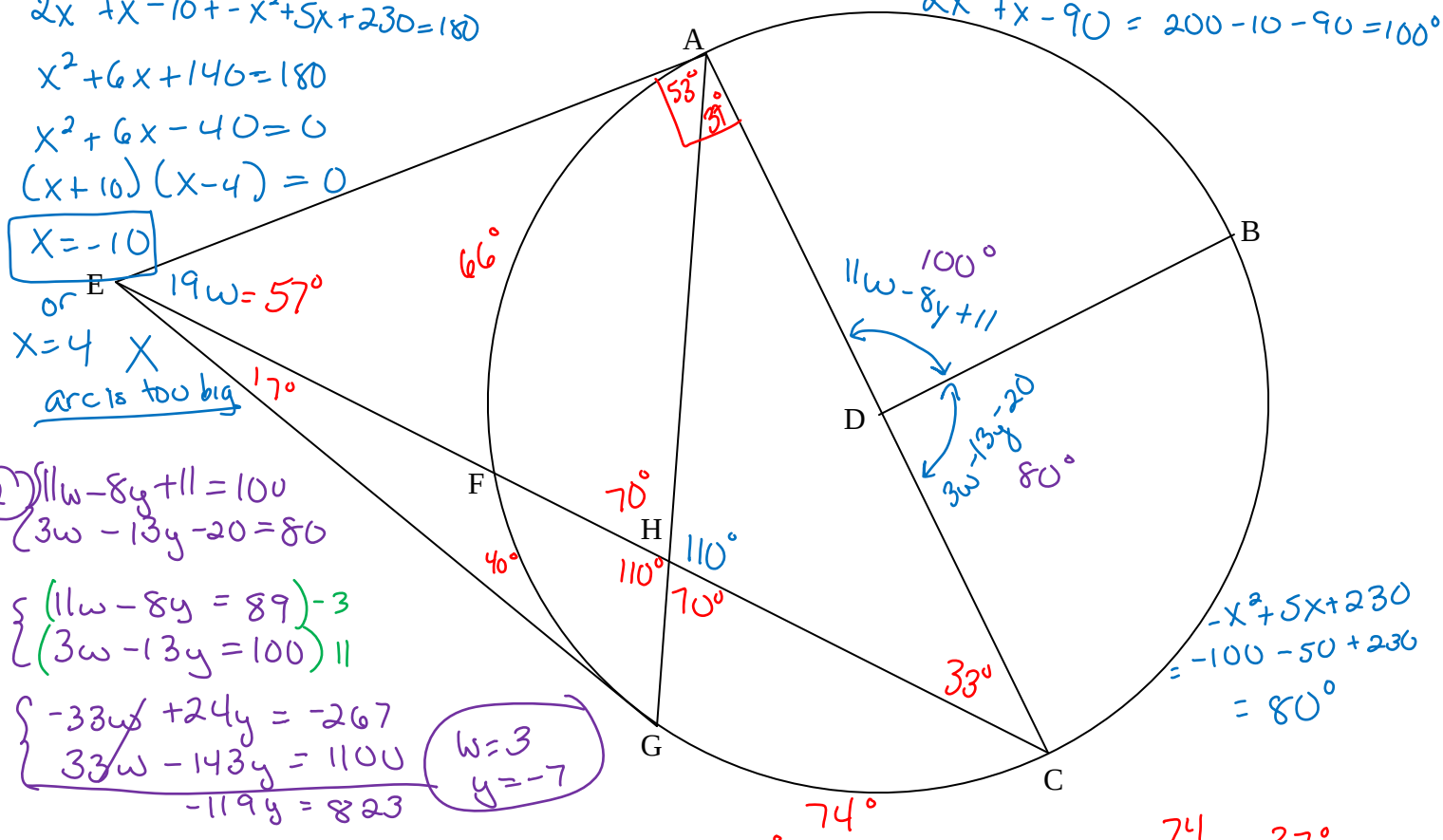
Accelerated Geometry
Circle Practice

Name Key
Date _____

In circle D shown below, $\overline{AC}$ is a diameter, $\overline{AE}$ and $\overline{EG}$ are tangent segments,
$m\angle ADB = 11w - 8y + 11$, $m\angle CDB = 3w - 13y - 20$, $m\angle AEH = 19w$, $m\angle AHC = 110$.
$m\overset{\frown}{AB} = 2x^2 + x - 90$, $m\overset{\frown}{BC} = -x^2 + 5x + 230$.



① $2x^2 + x - 90 + -x^2 + 5x + 230 = 180$
$x^2 + 6x + 140 = 180$
$x^2 + 6x - 40 = 0$
$(x + 10)(x - 4) = 0$
$x = -10$ or $x = 4$ ✗ arc is too big

$2x^2 + x - 90 = 200 - 10 - 90 = 100°$

② $11w - 8y + 11 = 100$
$3w - 13y - 20 = 80$

$\begin{cases} 11w - 8y = 89 \\ 3w - 13y = 100 \end{cases}$ $\begin{matrix} \cdot(-3) \\ \cdot 11 \end{matrix}$

$\begin{cases} -33w + 24y = -267 \\ 33w - 143y = 1100 \end{cases}$
$-119y = 833$
$w = 3$, $y = -7$

$-x^2 + 5x + 230$
$= -100 - 50 + 230$
$= 80°$

1. $w =$ 3
2. $x =$ −10
3. $y =$ −7
4. $\overset{\frown}{AB} =$ 100°
5. $\overset{\frown}{FG} =$ 40°
6. $\overset{\frown}{BC} =$ 80°
7. $\angle FEG =$ $\frac{74 - 40}{2} = 17°$
8. $\angle ACH =$ 33°
9. $\angle EAC =$ 90°
10. $\angle GHC =$ 70°
11. $\overset{\frown}{AF} =$ $\frac{180 - \overset{\frown}{AF}}{2} = 57$, $= 66°$
12. $\overset{\frown}{GC} =$ $70 = \frac{66 + \overset{\frown}{GC}}{2}$, $= 74°$
13. $\angle GHF =$ 110°
14. $\angle AHF =$ 70°
15. $\angle HAC =$ $\frac{74}{2} = 37°$
16. $\angle AEH =$ 57°
17. $\angle GAC =$ 37°
18. $\angle GAE =$ $\frac{106}{2} = 53°$
19. $\overset{\frown}{BAC} =$ 280°
20. $\angle BDC =$ 80°
21. $\angle ADB =$ 100°

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