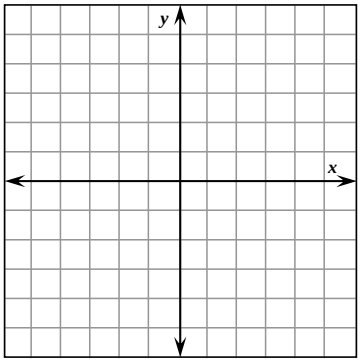
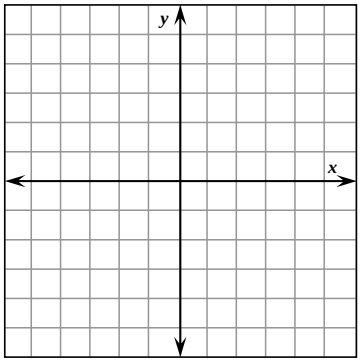
Problem Set 4 Name: _____

Show ALL Work For Credit. **Graphs 4 pts.**

1. Graph $f(x)=\begin{cases} 2-x, x<-2 \\ x+3, -2\le x<1 \\ -(x+1)^2+2, x\ge 1 \end{cases}$



2. Graph $f(x)=2|x+1|-2$



3. Find **all**, real and imaginary, roots for $h(x)=x^3+4x^2+4x+16$. (6 pts)

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4. Find all asymptotes for $y=\dfrac{x^3+2x^2-5x+7}{x^2-4}$. (4 pts. each)

V. A _____ S. A._____

5. Find the exact values for each. (so no decimals!) (4 pts. each)

A. $\sin\dfrac{5\pi}{3}$ _____ B. $\cos\dfrac{27\pi}{4}$ _____ C. $\tan\dfrac{13\pi}{6}$ _____ D. $\sec\dfrac{-5\pi}{2}$ _____

For questions # 6 – 12, round each angle to the nearest minute and each side to the nearest tenth.

6. Given $\Delta ABC,\ A=67^\circ,\ C=24^\circ,\ and\ a=16$ Solve the triangle. (4 pts. each)

B = _____ b = _____ c = _____

7. Given $\Delta LMN,\ L=54^\circ,\ n=22,\ and\ m=18$ Solve the triangle. (4 pts. each)

M = _____ l = _____ N = _____

8. Find the area of $\Delta RST,\ R = 40^\circ,\ s = 5.6,\ and\ t = 7.3$. (4 pts) Area = _____

9. Find the area of a triangle whose sides are 7, 9, and 12 inches long. (4 pts)

Area = _____

10. Two forest rangers, 12 miles from each other on a straight service road, both sight an illegal bonfire away from the road. Using their radios to communicate with each other, they determine that the fire is between them. The first ranger's line of sight to the fire makes an angle of 38 with the road, and the second ranger's line of sight to the fire makes a 63 angle with the road. How far is the fire from each other? (6 pts.)

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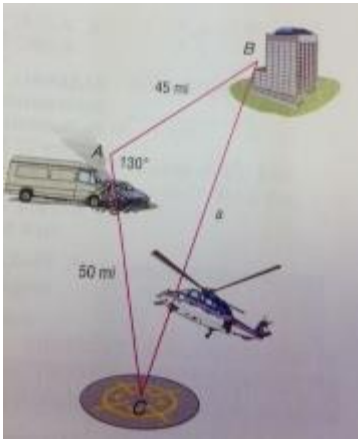
11. A medical rescue helicopter has flown from its home base at point C to pick up an accident victim at point A and then from there to the hospital at point B. The pilot needs to know how far he is now from his home base so he can decide whether to refuel before returning. How far is the hospital from the helicopter's base? (6 pts.)



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12. Use the following $y = 3\sin(2x - \pi) - 5$ to find: (3 pts. each)

Amplitude _____ Period _____

Phase shift _____ Vertical shift _____

A minimum point _____ A maximum point _____