**Problems 1 – 4: Solve by Graphing. Show the Graph AND the Solution(s).**

**Round to the nearest hundredth when necessary.**

**1.** $x^{2}+8x+7=0$ **2.** $x^{2}-8x+10=-6$

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Solution(s): **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** Solution(s): **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3.** $x^{2}-4x=-8$ **4.** $2x^{2}-4x-3=0$

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Solution(s): **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** Solution(s): **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Problems 5 – 10: Solve by Factoring. Show the Factors AND the Solution(s).**

**5.** $x^{2}+10x-24=0$ **6.** $4x^{2}+11x-3=0$

Factors: Factors:

Solution(s): Solution(s):

**7.** $4x^{2}-25=0$ **8.** $x^{2}+6x+18=9$

Factors: Factors:

Solution(s): Solution(s):

**9.** $6x^{2}+15x=25$ **10.** $6x^{2}+12x=0$

Factors: Factors:

Solution(s): Solution(s): **Problems 11 – 16: Simplify.**

**11.** $ \sqrt{99}$ **12.**$ \sqrt{27}$ **13.** $ \sqrt{-44}$

Answer: \_\_\_\_\_\_\_\_ Answer: \_\_\_\_\_\_\_\_ Answer: \_\_\_\_\_\_\_\_

**14.** $ \sqrt{200}$ **15.**$ \sqrt{72}$ **16.** $ \sqrt{-98}$

Answer: \_\_\_\_\_\_\_\_ Answer: \_\_\_\_\_\_\_\_ Answer: \_\_\_\_\_\_\_\_

**Problems 17 – 22: Solve by using Square Roots. You must show your work to receive full credit.**

**17.** $\left(x+5\right)^{2}=36$ **18.** $ 2\left(x-1\right)^{2}-97=1$

Solution(s): Solution(s):

**Problems 17 – 22 (continued): Solve by using Square Roots. You must show your work.**

**19.** $\left(x-4\right)^{2}=-36$ **20.** $\left(x+1\right)^{2}-4=21$

Solution(s): Solution(s):

**21.** $x^{2}=-100$ **22**. $ -3x^{2}-6=21$

Solution(s): Solution(s):

**23.** A rock is thrown upward from the top of a building. The height of the rock can be calculated using the function $h\left(t\right)=-16(t-4)^{2}+320 $, where h(*t*) represents the height of the rock after *t* seconds. After how many seconds does the rock hit the ground. Solve by Square Roots AND by Graphing. Make sure your answers match!

Answer: