AGS 2
Module 3.9 Homework

Name Key
Period

Simplify:

1) $\sqrt{-4} = 2i$

2) $\sqrt{-100} = 10i$

3) $\sqrt{-36} = 6i$

4) $\sqrt{-40} = 2i\sqrt{10}$

$2 \cdot 20$, $4 \cdot 10$, $2 \cdot 2 \cdot 5$

5) $\sqrt{-75} = 5i\sqrt{3}$

$3 \cdot 25$, $5 \cdot 5$

6) $-2\sqrt{44} = -4\sqrt{11}$

$2 \cdot 22$, $2 \cdot 11$

Solve. Remember to set all equations = 0.

6) $x^2 + 100 = 0$

$-100 \quad -100$

$\sqrt{x^2} = \pm\sqrt{-100}$

$x = \pm 10i$

7) $x^2 + 24 = 0$

$-24 \quad -24$

$\sqrt{x^2} = \pm\sqrt{-24}$

$x = \pm i\sqrt{24}$

$2 \cdot 12$, $4 \cdot 6$, $2 \cdot 2 \cdot 3$

$x = 2i\sqrt{6}$

8) $x^2 - 6x + 13 = 0$

$a=1$, $b=-6$, $c=13$

$x = \frac{+6 \pm \sqrt{36-52}}{2}$

$x = \frac{6 \pm \sqrt{-16}}{2}$

$x = \frac{6 \pm 4i}{2}$

$x = 3 \pm 2i$

9) $x^2 - 2x + 5 = 0$

$(x-1)^2 + 4 = 0$

$\sqrt{(x-1)^2} = \pm\sqrt{-4}$

$x - 1 = \pm 2i$

$+1 \quad +1$

$x = 1 \pm 2i$

10) $x^2 - 5x = 7 \quad x^2 - 5x - 7 = 0$

$a=1$, $b=-5$, $c=-7$

$x = \frac{5 \pm \sqrt{25+28}}{2}$

$x = \frac{5 \pm \sqrt{53}}{2}$

11) $2x^2 - 5x + 5 = 0$

$a=2$, $b=-5$, $c=5$

$x = \frac{+5 \pm \sqrt{25-40}}{4}$

$x = \frac{5 \pm \sqrt{-15}}{4}$

$x = \frac{5 \pm i\sqrt{15}}{4}$

Solve. Remember to set all equations = 0.

12) $2x^2 + 7x = -6$

$2x^2 + 7x + 6 = 0$

$a=2$, $b=7$, $c=6$

$x = \frac{-7 \pm \sqrt{49-48}}{2 \cdot 2}$

$x = \frac{-7 \pm 1}{4}$ ↗ $= \frac{-7+1}{4} = \frac{-6}{4} = \frac{-3}{2}$

↘ $= \frac{-7-1}{4} = \frac{-8}{4} = -2$

13) $x^2 + 15x + 56 = 0$

$(x+7)(x+8) = 0$

$x = -7$

$x = -8$

14) $5x^2 - 3x + 7 = 0$

$a=5$, $b=-3$, $c=7$

$x = \frac{3 \pm \sqrt{9-140}}{10}$

$x = \frac{3 \pm i\sqrt{131}}{10}$

15) $6x^2 + 7x = 5$ $6x^2 + 7x - 5 = 0$

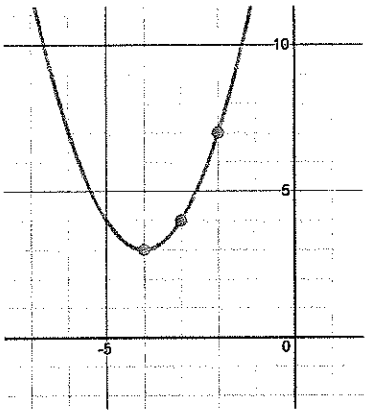
$a=6$, $b=7$, $c=-5$

$x = \frac{-7 \pm \sqrt{49+120}}{12}$

$x = \frac{-7 \pm 13}{12}$ ↗ $= \frac{-7+13}{12} = \frac{6}{12} = \frac{1}{2}$

↘ $= \frac{-7-13}{12} = \frac{-20}{12} = \frac{-5}{3}$

16) Write in vertex form and then in standard form. Solve.



vertex form: $y = 1(x+4)^2 + 3$

standard form: $y = x^2 + 8x + 19$

solve: $x = -4 \pm i\sqrt{3}$