Quadratic Quiz RETAKE

Simplify.

1) $-\sqrt{5}-3\sqrt{45}-2\sqrt{8}$

$-\sqrt{5}-9\sqrt{5}-4\sqrt{2}=-10\sqrt{5}-4\sqrt{2}$

2) $(4+\sqrt{3})(4-\sqrt{3})$

$16-3=13$

3) $-4-i+2-4i$

$-2-5i$

4) $(2+6i)(2-6i)$

$4+36=40$

Solve each equation by factoring.

5) $v^2+2v-48=0$

$(x-6)(x+8)$

$x=6,-8$

6) $k^2+12k+32=0$

$(x+4)(x+8)$

$x=-4,-8$

Solve each equation with the quadratic formula.

7) $4m^2+8m-23=0$

$a=4,\ b=8,\ c=-23$

$x=\dfrac{-8\pm\sqrt{64-4(4)(-23)}}{2(4)}$

$\dfrac{-8\pm\sqrt{432}}{8}$

$\dfrac{-8\pm12\sqrt{3}}{8}$

$\dfrac{-2\pm3\sqrt{3}}{2}$

$432=2\cdot216=2\cdot4\cdot54=2\cdot2\cdot9\cdot6=2\cdot2\cdot3\sqrt{3}\cdot3\sqrt{3}=12\sqrt{3}$

8) $7m^2-3m+5=0$

$x=\dfrac{3\pm\sqrt{131}\,i}{14}$

Sec II Honors
Unit 3 Review

Part I: Matching Match each equation on the left with its solution listed on the right.

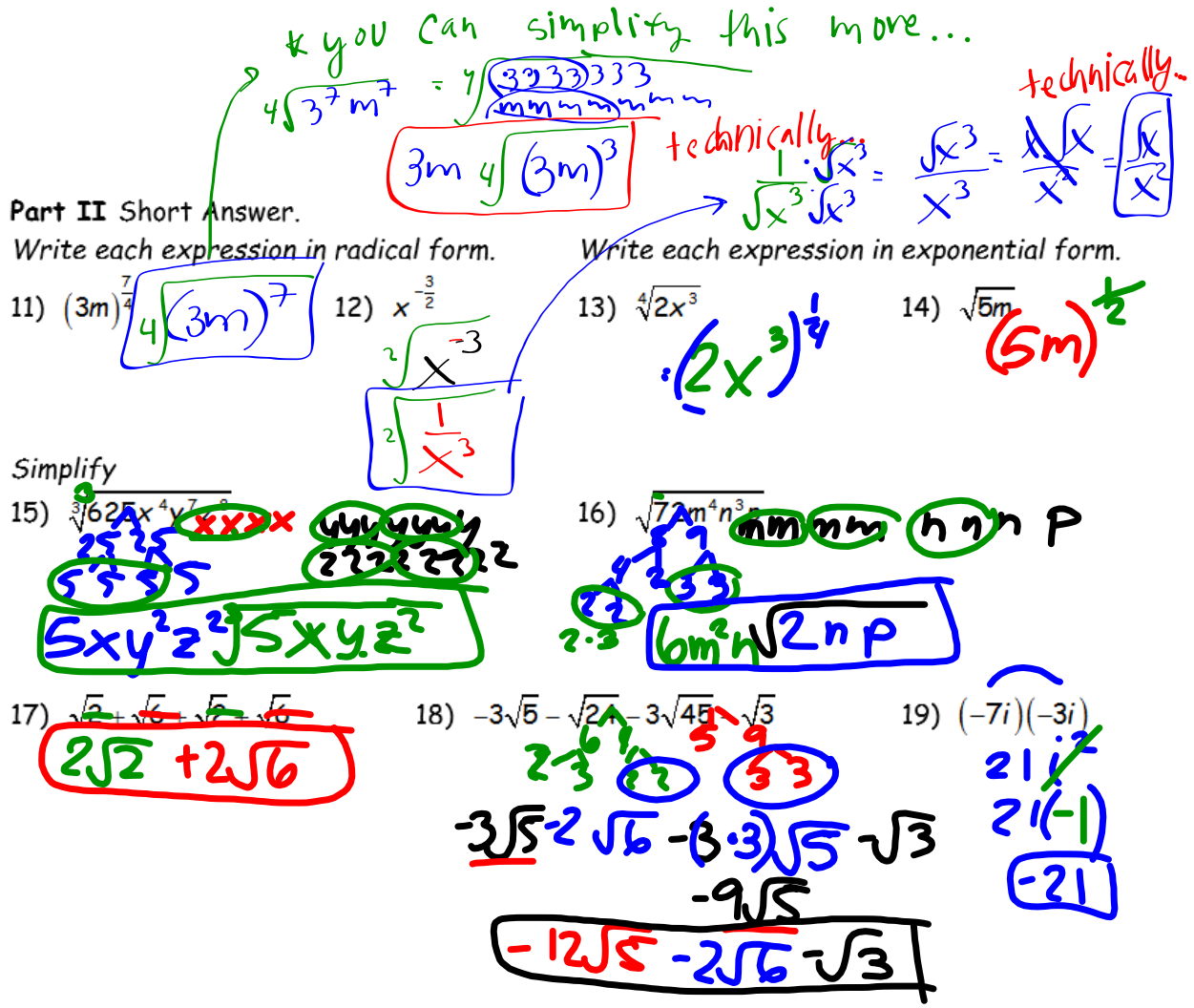
d 1) $x^2+8x+7=0$
g 2) $x^2-8x+7=0$
h 3) $x^2+8x-7=0$
e 4) $x^2-8x-7=0$
a 5) $(x+8)^2=7$

a) $x=-8\pm\sqrt{7}$
b) $x=4\pm i\sqrt{23}$
c) $x=-1,\ 7$
d) $x=-1,\ -7$
e) $x=4\pm\sqrt{23}$
f) $x=8\pm\sqrt{7}$
g) $x=1,\ 7$
h) $x=-4\pm\sqrt{23}$

Match each imaginary number on the left with its simplified version on the right.

d 6) i^{14}
b 7) i^{15}
c 8) i^{16}
a 9) i^{17}
b 10) i^{23}

a) i
b) $-i$
c) 1
d) -1


* you can simplify this more...
technically...
technically...
Part II Short Answer.
Write each expression in radical form.
Write each expression in exponential form.
11) $(3m)^{\frac{7}{4}}$
12) $x^{-\frac{3}{2}}$
13) $\sqrt[4]{2x^3}$
14) $\sqrt{5m}$
Simplify
15) $\sqrt[3]{625x^4y^7z^8}$
16) $\sqrt{72m^4n^3p}$
17) $\sqrt{2}+\sqrt{6}+\sqrt{2}+\sqrt{6}$
18) $-3\sqrt{5}-\sqrt{24}-3\sqrt{45}-\sqrt{3}$
19) $(-7i)(-3i)$

Solve the following quadratic equations and state what method you used, you must use all of the following methods at least once: completing the square, factoring, taking square roots, and the quadratic formula.

20) $x^2 - 16x + 11 = 0$ complete the square

$+11-64$

$(x-8)^2 - 53 = 0$

$+53 \quad +53$

$\sqrt{\quad} = \sqrt{53}$

$x - 8 = \pm\sqrt{53}$

$+8 \quad +8$

$x = 8 \pm \sqrt{53}$

21) $x^2 + 11x + 24 \leq 0$ factor

$(x+3)(x+8)$ 24, $3 \cdot 8$, 11

$x = -3, -8$

$-8 \leq x \leq -3$

22) $x^2 = 85$ sq. root

$x = \pm\sqrt{85}$

23) $7x^2 = 567$ square root

$\frac{7}{7} \quad \frac{7}{7}$

$\sqrt{x^2} = \sqrt{81}$

$x = \pm 9$

24) $-7 - 4x^2 = -70$ Sq. root

$+7 \quad +7$

$\frac{-4x^2}{-4} = \frac{-63}{-4}$

$x^2 = \frac{63}{4}$ $\sqrt{63} < 9$, $\sqrt{4} < 3$

$x = \pm\frac{3\sqrt{7}}{2}$

25) $4x^2 - 81 > 0$ Sq. Root

$+81 \quad +81$

$\frac{4x^2}{4} > \frac{81}{4}$

$x = \sqrt{\frac{81}{4}} = \pm\frac{9}{2}$

$x < -\frac{9}{2} \quad x > \frac{9}{2}$

26) $-3x^2 + 7x + 20 < 0$ Quadratic

$x = \frac{-7 \pm \sqrt{49 - 4(3)(0)}}{2(3)}$ $+240$, 289, $17 \cdot 17$

$\frac{-7 \pm \sqrt{289}}{-6}$

$\frac{-7 \pm 17}{-6} = \frac{10}{-6}, \frac{-24}{-6}$

$-\frac{5}{3}, 4$

$x < -\frac{5}{3} \quad x > 4$

27) $-11x^2 + x + 8 = 0$ Quadratic

$x = \frac{-1 \pm \sqrt{1 - 4(-11)(8)}}{2(-11)}$ -352

$\frac{-1 \pm \sqrt{-351}}{-22}$ $117 < 3, 39$

$\frac{-1 \pm 3\sqrt{39}\,i}{-22}$

$-\frac{1}{2} > x > \frac{1}{2}$ or

Simplify.

28) $(2+8i)-(8-8i)-4$

$2+8i-8+8i-4$

$-10+16i$

29) $\dfrac{4i}{-3-10i}$

$(-3+10i)$ $(-3+10i)$

$-12i+40i^2$

$9-30i+30i-100i^2$

$+100$

$\dfrac{-12i-40}{109}$

30) $(-7-8i)(-7-8i)$

$49+56i+56i+64i^2$

$-15+112i$