HW #1 LT 4.1 Skills Practice

NAME _____ DATE _____ PERIOD _____

LT 4.1 Skills Practice #1

Complex Numbers with Radicals

Simplify

1) $\sqrt{32}$

$\sqrt{4 \cdot 8}$

$\sqrt{4 \cdot 4 \cdot 2}$

$2 \cdot 2\sqrt{2}$

$4\sqrt{2}$

2) $\sqrt{45}$

$9 \cdot 5$

$3\sqrt{5}$

3) $\sqrt{18}$

$18 \cdot 10$

$9 \cdot 2 \cdot 5 \cdot 2$

$3 \cdot 2\sqrt{5}$

$6\sqrt{5}$

4) $\sqrt{525}$

$25 \cdot 21$

$5\sqrt{21}$

5) $\sqrt{11} \times \sqrt{5} =$

$\sqrt{55}$

6) $\sqrt{6} \times \sqrt{6} =$

$\sqrt{36} = \pm 6$

7) $2\sqrt{5} \times \sqrt{7} =$

$2\sqrt{35}$

8) $54 \times 2\sqrt{6}$

$108\sqrt{6}$

9) $\sqrt{\frac{49}{4}} = \pm \frac{7}{2}$

10) $\sqrt{\frac{1}{4}} = \pm \frac{1}{2}$

11) $\frac{\sqrt{24}}{\sqrt{3}} = \sqrt{\frac{6 \cdot 4}{3}} = \frac{2\sqrt{3 \cdot 2}}{\sqrt{3}}$

$= 2\sqrt{2}$

12) $\frac{6\sqrt{30}}{2\sqrt{5}} = \frac{\sqrt{6 \cdot 5}}{\sqrt{5}} = \sqrt{6}$

13. $\sqrt{52x^3y^5} = \sqrt{x^2 \cdot x \cdot y^2 \cdot y^2 \cdot y \cdot 52}$

$= x \cdot y^2\sqrt{52xy}$

2 21

2 7 3

14 $\sqrt{-108x^7}$

$\sqrt{-1}\sqrt{4\cdot 3\cdot x^2\cdot x^2\cdot x^2\cdot x}$

$i\cdot 3\cdot 2\cdot x\cdot x\cdot x\sqrt{3x}$

$6x^3i\sqrt{3x}$

15. $\sqrt{-81x^6}$

$\sqrt{-1}\cdot\sqrt{9\cdot 9\cdot x^2\cdot x^2\cdot x^2}$

$9ix^3$

16. $\sqrt{-23}\cdot\sqrt{-46}$

$\sqrt{-1}\sqrt{23}\sqrt{-1}\sqrt{2\cdot 23}$

$i^2\cdot 23\sqrt{2}$

$-23\sqrt{2}$

17. $(3i)(-2i)(5i)$

$-30i^2i$

$30i$

18. i^{11}

$(i^2)^5 i$

$(-1)^5 i$

$-1i$

19. i^{65}

$(i^2)^{32} i$

$(-1)^{32} i$

$-i$

20. $(7-8i)+(-12-4i)$

$7-12-8i-4i$

$-5-12i$

21. $(-3+5i)+(18-7i)$

$-3+18+5i-7i$

$15-2i$

22. $(10-4i)-(7+3i)$

$10-7-4i-3i$

$3-7i$

23. $(7-6i)(2-3i)$

$14-21i-12i+18i^2$

$14-33i-18$

$-4-33i$

24. $(3+4i)(3-4i)$

$9-12i+12i-16i^2$

$9+16$

25

25. $\frac{8-6i}{3i}\cdot\frac{3i}{3i}$

$\frac{(8-6i)(3i)}{-9}$

$\frac{24i-18i^2}{-9}$

$\frac{24i+18}{-9}$

$-2-\frac{24}{9}i$

26. $\frac{3i}{4+2i}\cdot\frac{4-2i}{4-2i}$

$\frac{3i(4-2i)}{16-4i^2}$

$\frac{12i-6i^2}{16-4(-1)}$

$\frac{12i+6}{20}$

$\frac{6}{20}+\frac{12}{20}i$

$\frac{3}{10}+\frac{3}{5}i$