Angeles City Science High School

Mathematics 9

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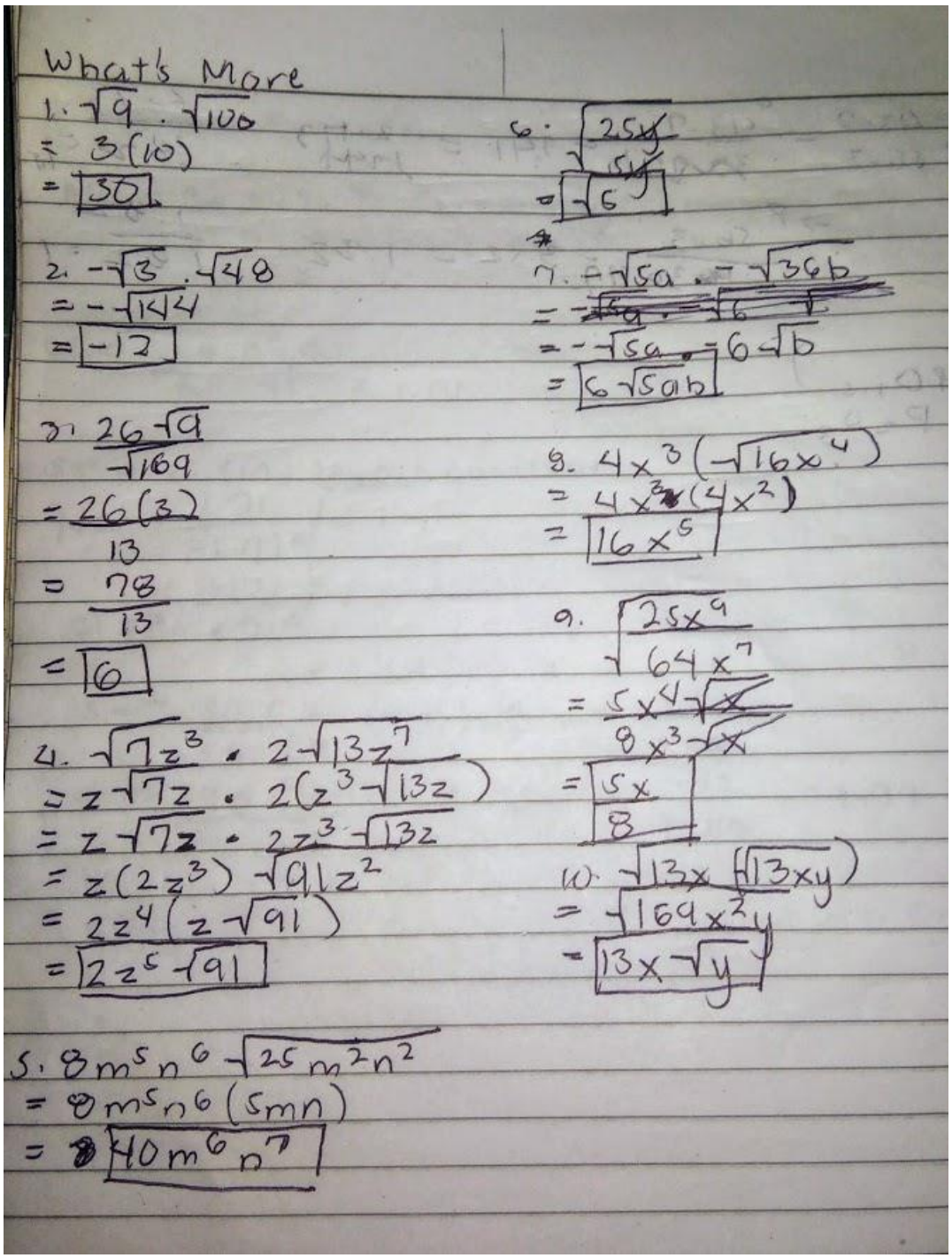

Assessment

1. $(\sqrt{12})^2$

$= \boxed{12}$

2. $\sqrt{18x} \cdot \sqrt{32x}$

$= \sqrt{x}(\sqrt{x})(\sqrt{9})(\sqrt{2})(\sqrt{16})(\sqrt{2})$

$= \sqrt{x^2} \cdot \sqrt{4} \cdot 3(4)$

$= 12x\sqrt{4}$

$= 12x(2)$

$= \boxed{24x}$

3. $-2\sqrt{8x}(3\sqrt{2x})$

$= -6\sqrt{16x^2}$

$= -6(4x)$

$= \boxed{-24x}$

4. $5\sqrt{15} \cdot 7\sqrt{6}$

$= 35\sqrt{5} \cdot \sqrt{3} \cdot \sqrt{6}$

$= 35\sqrt{90}$

$= 35\sqrt{10} \cdot \sqrt{9}$

$= 35(3)\sqrt{10}$

$= \boxed{105\sqrt{10}}$

5. $(-6\sqrt{4})^2$

$= 36\sqrt{16}$

$= 36(4)$

$= \boxed{144}$

6. $\dfrac{\sqrt{27x}}{\sqrt{25x}}$

$= \dfrac{\sqrt{9}\sqrt{3}}{5}$

$= \boxed{\dfrac{3\sqrt{3}}{5}}$

7. $\dfrac{\sqrt{200}}{5}$

$= \dfrac{\sqrt{100} \cdot \sqrt{2}}{5}$

$= \dfrac{10\sqrt{2}}{5}$

$= \boxed{2\sqrt{2}}$

8. $\dfrac{x\sqrt{y}}{x}$

$= \boxed{\sqrt{y}}$

9. $\dfrac{p^2 \cdot p^2}{p^2}$

$= \dfrac{p^2(p^2)}{p^2}$

$= \boxed{p^2}$

10. $\dfrac{3\sqrt{15}}{\sqrt{5}}$

$= \dfrac{3\sqrt{15} \cdot \sqrt{5}}{\sqrt{5}}$

$= \boxed{3\sqrt{3}}$

What's More

1. L: x = 16

$\sqrt{x} + 3 = 7$

$\sqrt{16} + 3 = 7$

$4 + 3 = 7$

$7 = 7$

✓

2. N: $= -6$

$\sqrt{x + 10} = 2$

$\sqrt{-6 + 10} = 2$

$\sqrt{4} = 2$

$2 = 2$

✓

3. L: x = 4

$9 = \sqrt{x} + 7$

$9 = \sqrt{4} + 7$

$9 = 2 + 7$

$9 = 9$

✓

4. G: x = 25

$3\sqrt{x} + x^2 = 15 + x^2$

$3\sqrt{25} + (25)^2 = 15 + (25)^2$

$3(5) + 625 = 15 + 625$

$15 + 625 = 15 + 625$

$640 = 640$

✓

5. M: x = -1

$\sqrt{x+5} + 1 = 3$

$\sqrt{-1+5} + 1 = 3$

$\sqrt{4} + 1 = 3$

$2 + 1 = 3$

$3 = 3$

✓

6. A: x = 1

$\sqrt{9x^2 + 4x - 4} = 3x$

$\sqrt{9(1)^2 + 4(1) - 4} = 3(1)$

$\sqrt{9 + 4 - 4} = 3$

$\sqrt{9} = 3$

$3 = 3$

✓

7. R: x = 2

$\sqrt{5x - 2} = \sqrt{x + 6}$

$\sqrt{5(2) - 2} = \sqrt{2 + 6}$

$\sqrt{10 - 2} = \sqrt{8}$

$\sqrt{8} = \sqrt{8}$

$2\sqrt{2} = 2\sqrt{2}$

✓

8.5: $x = 3$

$\sqrt{x} = \sqrt{6x - 15}$

$\sqrt{3} = \sqrt{6(3) - 15}$

$\sqrt{3} = \sqrt{18 - 15}$

$\sqrt{3} = \sqrt{3}$

✓

9.7: $x = 2, 5$

$\sqrt{5x - 9} - x = -1$

$\sqrt{5(2) - 9} - 2 = -1$

$\sqrt{10 - 9} - 2 = -1$

$\sqrt{1} - 2 = -1$

$\sqrt{1} = -1 + 2$

$(\sqrt{1})^2 = (1)^2$

$1 = 1$

✓

$\sqrt{5(5) - 9} - 5 = -1$

$\sqrt{25 - 9} - 5 = -1$

$\sqrt{16} - 5 = -1$

$4 - 5 = -1$

$-1 = -1$

✓

10. E: $x = 7, -3$

$x - 3 = \sqrt{30 - 2x}$

$7 - 3 = \sqrt{30 - 2(7)}$

$4 = \sqrt{30 - 14}$

$4 = \sqrt{16}$

$4 = 4$ ✓

$x = -3$ → extraneous root

$-3 - 3 = \sqrt{30 - 2(-3)}$

$-6 = \sqrt{30 + 6}$

$-6 = \sqrt{36}$

$-6 = 6$

11. P: $x = -2, 3$

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

$\sqrt{(-2)^2 + 2 - 2} = 2$

$\sqrt{4} = 2$

$2 = 2$ ✓

$\sqrt{(3)^2 - 3 - 2} = 2$

$\sqrt{9 - 3 - 2} = 2$

$\sqrt{4} = 2$

$2 = 2$ ✓

12. F: $x = 0, 1$

$\sqrt{x + 5} = \sqrt{x^2 + 5}$

$\sqrt{0 + 5} = \sqrt{(0)^2 + 5}$

$\sqrt{5} = \sqrt{5}$ ✓

$\sqrt{1 + 5} = \sqrt{(1)^2 + 5}$

$\sqrt{6} = \sqrt{6}$ ✓

Message

FIRST
ATTEMPT
IN
LEARNING

Assessment

1. $\sqrt{x} - 4 = 0$

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

$\boxed{x = 16}$

2. $(\sqrt{x})^2 = (-10)^2$

$\boxed{x = 100}$

3. $2\sqrt{2x+7} = 10$

$\frac{2}{2}$

$(\sqrt{2x+7})^2 = (5)^2$

$2x + 7 = 25$

$2x = 25 - 7$

$\frac{2x}{2} = \frac{18}{2}$

$\boxed{x = 9}$

4. $(x-7)^2 = (\sqrt{3x-21})^2$

$x^2 - 14x + 49 = 3x - 21$

$x^2 - 14x + 49 - 3x + 21 = 0$

$x^2 - 17x + 70 = 0$

$(x - 10)(x - 7) = 0$

$x - 10 = 0$ | $x - 7 = 0$

$\boxed{x = 10}$ | $\boxed{x = 7}$

5. $(\sqrt{x+8})^2 = (\sqrt{3x+8})^2$

$x + 8 = 3x + 8$

$3x - x + 8 - 8 = 0$

$2x = 0$

$\frac{2}{2}$

$\boxed{x = 0}$

6. $(x)^2 = (\sqrt{40 - 3x})^2$

$x^2 = 40 - 3x$

$x^2 - 40 + 3x = 0$

$x^2 + 3x - 40 = 0$

$(x + 8)(x - 5) = 0$

$x + 8 = 0$ | $x - 5 = 0$

$\boxed{x = -8}$ | $\boxed{x = 5}$