1. **Std 2.0** Simplify: $\sqrt[3]{64a^6b^{12}}$

2. **Std 2.0** Simplify: $\sqrt{100x^5y^2}$

3. **Std 2.0** Using fractional exponents, what is the simplified form of $\left(\sqrt[3]{x^2y}\right)\left(x^{\frac{1}{3}}y^{\frac{1}{6}}\right)$?

4. **Std 2.0** Simplify: $x^3y(xy^4)^{\frac{1}{2}}$

5. **Std 2.0** What is the simplified form of $3x + \left(x^{\frac{1}{3}}\right)^{\frac{3}{4}} \bullet x^{\frac{1}{2}}$?

6. **Std 12.0** Kelly did the following problem on her quiz.

Simplify: $\dfrac{x^2+4x-5}{3x^3+18x^2+15x}$

Step 1: $\dfrac{x^2+4x-5}{3x^3+18x^2+15x} = \dfrac{x^2+4x-5}{3x(x^2+6x+5)}$

Step 2: $\dfrac{x^2+4x-5}{3x(x^2+6x+5)} = \dfrac{(x+5)(x-1)}{3x(x+5)(x+1)}$

Step 3: $\dfrac{(x+5)(x-1)}{3x(x+5)(x+1)} = \dfrac{x-1}{3x(x+1)}$

Step 4: $\dfrac{x-1}{3x(x+1)} = \dfrac{-1}{3(x+1)}$

In which step does the first error occur? Explain.

7. **Std 12.0** In order to simplify $\dfrac{2x^2-9x-5}{6x^2+5x+1}$, what is the common factor of the numerator and the denominator?

8. **Std 12.0** What is the simplest form of the fraction $\dfrac{2x^2+x-3}{x^2+3x-4}$?

9. **Std 12.0** What is the simplified form of $\dfrac{4x^2+28x}{x^2+4x-21}$?

10. **Std 12.0** What is $\dfrac{3x^2+6x}{3x^2+x-10}$ reduced to lowest terms?

11. **Std 13.0** What is the area of the rectangle shown?

$\dfrac{4x+1}{2}$

$\dfrac{5x-2}{3}$

12. **Std 13.0** Find the product of $\dfrac{x+1}{5}$ and $\dfrac{2x}{3}$

13. 22. **Std 13.0** Susan has $\dfrac{3n+2}{2}$ CDs and Sunny has $\dfrac{4n-1}{5n}$ CDs. Together, how many CDs do they have?

14. **Std 13.0** What is the answer to $\frac{x+1}{3x}$ minus $\frac{2x+3}{5}$?

15. **Std 13.0** Simplify:

$$\frac{x^2+6x+9}{x^2-9} \div \frac{x^2+3x}{2x^2-6x}$$

16. **Std 13.0** Simplify: $\dfrac{\frac{x}{3}+\frac{x}{6}}{\frac{5x}{9}}$

17. **Std 15.0** You and your brother volunteer to clean the backyard. You could do the job by yourself in 3 hours. Your brother could do the job in 6 hours. How long would it take to clean the backyard if you both work together?

18. **Std 15.0** Ellen and Sahra want to plant a garden. If Ellen worked alone, it would take her 4 hours to complete the job. If Sahra worked alone, it would take her 2 hours to complete the job. How many hours would it take them to plant the garden if they worked together?

19. **Std 15.0** Judie can clean her room in 60 minutes. If her sister helps her, it takes them 36 minutes to complete the job working together. How long does it take her sister to clean the room alone?

20. **Std 15.0** Two water hoses can fill a pool in 8 hours. The smaller hose takes twice as long to fill the pool as the larger hose. How long would it take the smaller hose alone to fill the pool?

21. **Std 15.0** Karina can write a report in 12 hours. If Kim works with her, they could write the report together in three hours. How long will it take Kim to write the report alone?

Answer Key

1. $4a^2b^4$

2. $10x^2y\sqrt{x}$

3. $xy^{\frac{1}{2}}$

4. $x^{\frac{7}{2}}y^3$

5. $3x + x^{\frac{3}{4}}$

6. step 4

7. 2x + 1

8. $\frac{2x+3}{x+4}$

9. $\frac{4x}{x-3}$

10. $\frac{3x}{3x-5}$

11. $\frac{20x^2-3x-2}{6}$

12. $\frac{2x^2+2x}{15}$

13. $\frac{15n^2+18n-2}{10n}$

14. $\frac{-6x^2-4x+5}{15x}$

15. 2

16. $\frac{9}{10}$

17. 2 hrs

18. $1\frac{1}{3}$ hr

19. 90 minutes

20. 24 hrs

21. 4 hrs