

Instructions: This exam consists of 25 4-point problems. The instruction “simplify” means to do the indicated operation(s) and write the expression in simplest form.

1. Simplify  $\frac{4x^3y^4}{6x^4y}$

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answer

2. Simplify  $\frac{9-x^2}{x^2+x-12}$

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answer

3. Simplify  $\frac{10x^2-15x}{12x-8} \cdot \frac{3x-2}{20x-25}$

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answer

4. Simplify  $\frac{6n^2+13n+6}{4n^2-9} \div \frac{6n^2+n-2}{4n^2-1}$

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answer

5. Simplify  $\frac{7}{x^2} + \frac{9}{x^2}$

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answer

6. Simplify  $\frac{3x^2}{x^2-1} - \frac{x+4}{x^2-1}$

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answer

7. Simplify  $\frac{y}{x} - \frac{4x}{3x} + \frac{3y}{4x}$

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answer

8. Simplify  $\frac{2x}{x-3} - \frac{5}{3-x}$

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answer

9. Simplify  $x - \frac{3}{5x}$

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answer

10. Simplify  $\frac{2x}{2x-3} - \frac{1}{x+1}$

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answer

11. Simplify  $\frac{\frac{1}{x} + \frac{1}{2}}{\frac{1}{x^2} - \frac{1}{4}}$

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answer

12. Solve  $\frac{4}{x} - \frac{x}{2} = \frac{7}{2}$

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answer

13. Solve  $\frac{3x}{x-4} = 5 + \frac{12}{x-4}$

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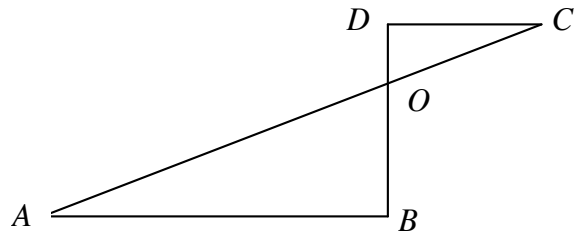
answer

14. Solve  $\frac{8}{x+3} = \frac{4}{x}$

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answer

15. In the figure,  $AB$  is parallel to  $DC$  and angles  $B$  and  $D$  are right angles.  $AB = 12$  m,  $DC = 4$  m, and  $AC = 18$  m. Find the length of  $CO$ .



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answer

16. Simplify  $3\sqrt{90}$

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answer

17. Simplify  $2a\sqrt{18a^3b^{10}}$

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answer

18. Simplify  $3\sqrt{12x^3} - 2x\sqrt{3x}$

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answer

19. Multiply (and simplify)  $\sqrt{5x^3y}\sqrt{10x^2y}$

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answer

20. Multiply  $(2\sqrt{a} - y)^2$

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answer

21. Simplify  $\frac{6}{\sqrt{12x}}$

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answer

22. Solve  $\sqrt{3x} + 2 = 5$

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answer

23. Solve  $\sqrt{2x-5} + 3 = 0$

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answer

24. Solve  $\sqrt{x} - \sqrt{x-5} = 1$

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answer

25. A soft drink is made by mixing 4 parts of carbonated water with every 3 parts of syrup. How many milliliters of carbonated water are in 280 ml of soft drink?

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answer

1. 9.1 Example 1A
2. 9.1 Example 1B
3. 9.1 Example 2A
4. 9.1 Exercise 82  $\frac{2n+1}{2n-3}$
5. 9.3 Example 1A
6. 9.3 Example 1B
7. 9.3 Example 2A
8. 9.3 Example 2B
9. 9.3 Example 2C
10. 9.3 Example 3A
11. 9.4 Example 1A
12. 9.5 Example 1
13. 9.5 Example 2
14. 9.5 Example 3A
15. 9.5 Example 6
16. 10.1 Example 1
17. 10.1 Example 4B
18. 10.3 Example 2A
19. 10.3 Exercise 10  $5x^2y\sqrt{2x}$
20. 10.3 Exercise 22  $4a - 4y\sqrt{a} + y^2$
21. 10.3 Exercise 49  $\sqrt{3x} / x$
22. 10.4 Example 1
23. 10.4 Example 2B
24. 10.4 Example 3
25. 9.5 Exercise #55, 160 oz carbonated water