

1. Find the real solutions of the equation by factoring.

$$2x^4 - 50x^2 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your answer.

- ☒ A. The solution set is $\{-5, 0, 5\}$.
(Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

2. Find the real solutions of the equation by factoring.

$$x^4 - 2x^3 = 4x^2 - 8x$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\{-2, 0, 2\}$.
(Simplify your answer. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

3. Solve the equation by multiplying both sides by the LCD.

$$\frac{1}{x} + \frac{5}{x+1} = 5$$

The solution set is $\left\{\frac{1+\sqrt{21}}{10}, \frac{1-\sqrt{21}}{10}\right\}$.

(Simplify your answer. Type exact answers, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

4. Solve the equation by multiplying both sides by the LCD.

$$\frac{1}{x} + \frac{1}{x+6} = \frac{11}{6x+8}$$

The solution set is $\{6, 8\}$.

(Simplify your answer. Type an exact answer using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

5. Solve the equation. Check your answers.

$$\frac{x}{x-10} - \frac{10}{x+10} = \frac{20x}{x^2-100}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. The solution set is $\{\}$.
(Simplify your answer. Use a comma to separate answers as needed.)
- ☒ B. The solution set is $\emptyset$.

6. Solve the equation. Check your answers.

$$\frac{2x}{x+5} - \frac{x}{x-1} = \frac{18}{x^2 + 4x - 5}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is { }.
(Simplify your answer. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

7. Solve the equation.

$$\sqrt{7x+36} = x+4$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is { }.
(Simplify your answer. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

8. Solve the equation. Check your answers.

$$t - \sqrt{10t+39} = -6$$

Select the correct choice below and, if necessary, fill in the answer box to complete your answer.

- ☒ A. The solution set is { }.
(Simplify your answer. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

9. Solve the equation.

$$(x-2)^{5/2} = 243$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is { }.
(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

10. Solve the equation.

$$(x-6)^{5/2} = 32$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is { }.
(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

11. Solve the given equation by using an appropriate substitution. Check your answers.

$$x - 11\sqrt{x} + 18 = 0$$

Write the given equation in quadratic form using the correct substitution.

$$u^2 - 11u + 18 = 0 \text{ (Type an equation using } u \text{ as the variable. Do not factor.)}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\{ \text{4,81} \}$.
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

12. Solve the given equation by using an appropriate substitution. Check your answers.

$$3y - 10\sqrt{y} = -3$$

Write the given equation in quadratic form using the correct substitution.

$$3u^2 - 10u + 3 = 0 \text{ (Type an equation using } u \text{ as the variable. Do not factor.)}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\left\{ \frac{1}{9}, 9 \right\}$.
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

13. Solve the given equation by using an appropriate substitution.

$$x^{2/3} - 3x^{1/3} - 4 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution is $\{ -1,64 \}$.
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

14. Solve the given equation by making an appropriate substitution.

$$2x^{1/2} + x^{1/4} - 3 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\{ 1 \}$.
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

15. Solve the given equation by using an appropriate substitution.

$$x^4 - 50x^2 + 49 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution is $\{-7, -1, 1, 7\}$.
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

16. Solve the given equation by using an appropriate substitution.

$$6t^4 + 5t^2 - 1 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\left\{-i, i, -\frac{\sqrt{6}}{6}, \frac{\sqrt{6}}{6}\right\}$.
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

17. Solve the given equation using an appropriate substitution.

$$(x^2 - 7)^2 - (x^2 - 7) - 12 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\{-\sqrt{11}, -2, 2, \sqrt{11}\}$.
(Simplify your answer. Type exact answers, using radicals and i as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

18. Solve the given equation using an appropriate substitution.

$$(x^2 - 6x)^2 - 11(x^2 - 6x) - 80 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\{-2, 1, 5, 8\}$.
(Simplify your answer. Type exact answers, using radicals and i as needed. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

19. Solve.

$$\frac{1}{3}|x| = 7$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\{-21, 21\}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- ☐ B. The solution set is the empty set.

20. Solve the following equation.

$$\left| \frac{1}{3}x + 9 \right| = 18$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\{ -81, 27 \}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- ☐ B. The solution set is the empty set.

21. Solve the equation.

$$2|1 - 2x| - 8 = 18$$

Select the correct answer below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\{ -6, 7 \}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- ☐ B. The solution set is $\emptyset$.

22. Solve the inequality.

$$|6 - 2x| > 7$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\left(-\infty, -\frac{1}{2} \right) \cup \left(\frac{13}{2}, \infty \right)$.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)
- ☐ B. The solution set is $\emptyset$.

23. Solve the following inequality.

$$|3x + 8| \leq 23$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution is $\left[-\frac{31}{3}, 5 \right]$.
(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)
- ☐ B. The solution is the empty set.

*24. Solve the inequality.

$$\left| \frac{1}{6} - x \right| < 4$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.



A.

The solution set is $\left(-\frac{23}{6}, \frac{25}{6} \right)$.

(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)



B.

The solution set is $\emptyset$.

*25. Solve the inequality. Give the solution set using interval notation.

$$3|x - 3| > 9$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.



A.

The solution set is $(-\infty, 0) \cup (6, \infty)$.

(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)



B.

The solution set is $\emptyset$.

*26. Solve the inequality. Give the solution set using interval notation.

$$4|x - 3| > 16$$

Rewrite the inequality without the absolute value bars. Select the correct choice below and, if necessary, fill in the answer boxes to complete your choice.

(Use integers or fractions for any numbers in the inequality.)



A.

$x - 3 < -4$ or $x - 3 > 4$



B.

$x - 3 <$



C.

$x - 3 >$



D.

$< x - 3 <$

Solve the inequality. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.



A.

The solution set is $(-\infty, -1) \cup (7, \infty)$.

(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)



B.

The solution set is $\emptyset$.

- *27. Solve the inequality.

$$|5 - 2x| > 14$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\left(-\infty, -\frac{9}{2}\right) \cup \left(\frac{19}{2}, \infty\right)$.
(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)
- ☐ B. The solution set is $\emptyset$.

- *28. Solve the inequality. Give the solution set in interval notation.

$$|3 - 4x| > 8$$

Rewrite the inequality without the absolute value. Select the correct choice below and fill in the answer box(es) to complete your choice. (Use integers or fractions for any numbers in the expression.)

- ☐ A. $3 - 4x >$
- ☐ B. $< 3 - 4x <$
- ☒ C. $3 - 4x >$ 8 or $3 - 4x <$ -8
- ☐ D. $3 - 4x <$

Solve the inequality. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\left(-\infty, -\frac{5}{4}\right) \cup \left(\frac{11}{4}, \infty\right)$.
(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)
- ☐ B. The solution set is $\emptyset$.

- *29. Solve the inequality.

$$|3 - 5x| + 1 \geq 5$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☒ A. The solution set is $\left[-\infty, -\frac{1}{5}\right] \cup \left[\frac{7}{5}, \infty\right)$.
(Simplify your answer. Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)
- ☐ B. The solution set is $\emptyset$.