

1. Simplify: $\frac{10x + 20}{5x^2 + 20x + 20}$
- (A) $\frac{2}{x+2}$ (B) $\frac{1}{x+2}$ (C) $\frac{x+2}{2}$
- (D) $2(x+2)$ (E) $x+2$

2. Multiply: $\frac{2a+10}{a^2} \cdot \frac{a^3}{4a+20}$
- (A) $\frac{2}{a}$ (B) $a+2$ (C) $\frac{a^2}{2}$
- (D) $\frac{a^5}{2}$ (E) $\frac{a}{2}$

3. Solve: $\frac{x}{3} = \frac{12}{x}$. One solution is:
- (A) $x = 4$ (B) $x = 2$ (C) $x = 6$
- (D) $x = 8$ (E) $x = 36$

4. Divide: $\frac{11}{x-2} \div \frac{22}{2x^2-8}$
- (A) $x+2$ (B) $\frac{x}{2}$ (C) $2x+4$
- (D) $x-2$ (E) x^2+2

5. Subtract: $\frac{x+1}{x-1} - \frac{4}{x^2-1}$
- (A) $x+3$ (B) $x-3$ (C) $\frac{x+1}{x+3}$
- (D) $\frac{x+3}{x+1}$ (E) $\frac{x-1}{x-3}$

6. The sum of a number and 7 times its reciprocal is $\frac{16}{3}$. There are two numbers with this property. One is:
- (A) $\frac{1}{2}$ (B) $\frac{1}{4}$ (C) $\frac{7}{4}$
- (D) 3 (E) 4

7. A builder knows that 7 out of every 49 parts he produces are defective. If he produces 1064 parts, how many will be defective?
- (A) 63 (B) 152 (C) 304
- (D) 156 (E) 70

8. Solve for x: $\frac{x+1}{3} = \frac{4}{x}$
- (A) $x = 3$ or $x = -4$ (B) $x = -3$ or $x = -4$
- (C) $x = -3$ or $x = 4$ (D) $x = -3$
- (E) $x = 3$ or $x = 4$

9. Solve: $\frac{4}{x} + 3 = \frac{1}{x}$
- (A) $x = 1$ (B) $x = -1$ (C) $x = 7$
- (D) $x = 2$ (E) $x = -2$

10. Add: $\frac{x-4}{x-3} + \frac{5}{x^2-x-6}$
- (A) $\frac{x-1}{x+2}$ (B) $\frac{x-1}{x-2}$ (C) $\frac{1}{x+2}$
- (D) $\frac{x+1}{x+2}$ (E) $\frac{x+1}{x-2}$

Key

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| 1. A | 6. D |
| 2. E | 7. B |
| 3. C | 8. A |
| 4. A | 9. B |
| 5. D | 10. D |