

**MATH R3 PROF. ALFRED DOLICH TEST #3  
REVIEW**

- (1) Simplify:  $\frac{10x^2 + 10x}{10x^2 + 15x}$
- (2) Simplify:  $\frac{5x^2 + 22x + 21}{x^4 - 9x^2}$
- (3) Multiply and simplify:  $\frac{x^2 - 25}{x^2 - 64} \cdot \frac{x^2 - 10x + 16}{x^2 + 9x + 20}$
- (4) Divide and simplify:  $\frac{x^2 + 3x - 4}{6x - 6} \div \frac{x^2 - 6x + 8}{x - 2}$
- (5) Subtract and simplify:  $\frac{14 - 2x}{3x^2 - 19x - 14} - \frac{21 - 3x}{3x^2 - 19x - 14}$
- (6) Add and simplify:  $\frac{12y - 1}{8 - 3y} + \frac{y - 6}{3y - 8}$
- (7) Find the LCM of  $y^3 + 7y^2$  and  $y^2 - 49$ .
- (8) Add and simplify:  $\frac{5}{12xy} + \frac{1}{9x^2}$
- (9) Subtract and simplify:  $\frac{a + 3}{a^2 - 4a - 4} - \frac{a}{a^2 - 8a + 15}$
- (10) Subtract and simplify:  $4b - \frac{1}{2b + 1}$
- (11) Simplify:  $\frac{\frac{1}{(8+h)^2} - \frac{1}{64}}{h}$
- (12) Compute if possible:  $\sqrt{-4}$ .
- (13) Compute if possible:  $\sqrt{\frac{25}{36}}$
- (14) Simplify:  $\sqrt{(15ab^2)^2}$
- (15) State if rational or irrational:  $\sqrt{29}$
- (16) Simplify:  $-\sqrt{54}$
- (17) Simplify:  $\sqrt{56a^6b^{15}c}$
- (18) Multiply and simplify:  $\sqrt{8x^5y^4} \cdot \sqrt{5x^2y^2}$

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- (19) Divide and simplify:  $\frac{\sqrt{5a^4b}}{\sqrt{45a^3b^5}}$
- (20) Add and simplify:  $4\sqrt{6} + 5\sqrt{72}$ .
- (21) Subtract and simplify:  $-7\sqrt{8} - 2\sqrt{18}$
- (22) Multiply and simplify:  $(2\sqrt{3} + 5)(2\sqrt{3} - 5)$
- (23) Multiply and simplify:  $(-5\sqrt{5})^2$
- (24) Rationalize the denominator:  $\frac{7}{\sqrt{x}}$
- (25) Rationalize the denominator:  $\frac{2 - \sqrt{3}}{1 + \sqrt{3}}$
- (26) Combine and simplify:  $3\sqrt[3]{16} + \sqrt[3]{24}$
- (27) Simplify:  $\sqrt[3]{y^{25}}$
- (28) Multiply and simplify:  $(\sqrt[3]{12} - 3)^2$
- (29) Simplify:  $\sqrt[7]{x^{24}y^2}$
- (30) Multiply and simplify:  $(\sqrt[5]{3} + 4)(\sqrt[3]{3} - 1)$