Kerry Ojakian's MTH 28 Class
Class Assignment #10

1. Simplify.

   (a) $\dfrac{(x+2)(x-3)}{(x+2)(x-5)}$

   (b) $\dfrac{(x+4)(x^2+1))}{(x^2+1)(x-5)}$

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2. Simplify.

   (a) $\dfrac{16(x+5)^2(x-3)}{12(x+2)^2(x+5)}$

   (b) $\dfrac{x^3-2x^2-25x+50}{x^2-5x}$

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3. Simplify.

   (a) $\dfrac{x^2+8x+15}{x^2-9}x$

   (b) $\dfrac{x^2+2x-15}{x^2+6x+5}$

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4. Simplify.

   (a) $\dfrac{49-x^2}{x^2+8x+7}$

   (b) $\dfrac{x-7}{7-x}$

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5. Simplify.

   (a) $\dfrac{x^2+7x+12}{x^2+3x+2}$

   (b) $\dfrac{-5x^2-10x}{-10x^2+30x+100}$

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6. Perform the operation and simplify:

$$\frac{20x^2y^7}{zw^2} \cdot \frac{12z^3w^2}{15xy^6}$$

7. Multiply and simplify.

   (a) $\dfrac{x+2}{x-3} \cdot \dfrac{x+1}{x+2}$

   (b) $\dfrac{(x+4)(x+3)}{(x-2)(x-5)} \cdot \dfrac{(x+4)(x-5)}{(x+3)(x+5)}$

8. Multiply and simplify.

   (a) $\dfrac{x^2+5x+6}{x^2+2x-3} \cdot \dfrac{x^2+7x+12}{x+2}$

   (b) $\dfrac{x^2+3x}{x^2-3x-4} \cdot \dfrac{(x-4)(x-5)}{x^2}$

9. Multiply and simplify.

   (a) $\dfrac{72x-12x^2}{8x+32} \cdot \dfrac{x^2+10x+24}{36x^2-1}$

   (b) $\dfrac{3x^2+15x}{x^2+10x+25} \cdot \dfrac{1}{6x^2+30x}$

10. Perform the indicated operations and simplify:

(a) $\dfrac{m^3 n}{2mn} \cdot \dfrac{6mn^2}{m^3 n} \div \dfrac{3mn}{5m^2 n}$

(b) $\dfrac{D^2 - 3D - 18}{16D - 96} \div \dfrac{D^2 - 9}{20D}$

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11. Simplify:

(a) $\dfrac{\left(\frac{x^3}{12}\right)}{\left(\frac{x^5}{18}\right)}$

(b) $\dfrac{\left(\frac{m - 3n}{4m}\right)}{\left(\frac{m^2 - 3mn}{8n}\right)}$

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12. Divide and simplify.

(a) $\dfrac{x + 2}{x - 1} \div \dfrac{x + 2}{x + 5}$

(b) $\dfrac{(x - 3)(x + 3)}{(x - 7)(x - 6)} \div \dfrac{(x - 3)(x - 5)}{(x - 7)(x + 5)}$

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13. Divide and simplify.

(a) $\dfrac{x^2 + 5x + 6}{x^2 + 7x + 12} \div \dfrac{x + 2}{x^2 + 2x - 3}$

(b) $\dfrac{\dfrac{x^2 - 4x}{x^2 - 3x - 10}}{\dfrac{(x - 4)}{x^2(x - 5)}}$

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14. Divide and simplify.

(a) $\dfrac{\dfrac{12x - 72x^2}{8x - 32}}{\dfrac{x^2 - 36}{x^2 - 10x + 24}}$

(b) $\dfrac{\dfrac{1}{x^2 - 10x + 25}}{\dfrac{1}{5x^3 - 25x^2}}$

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15. For what x is the expression $\dfrac{x + 98}{x - 5}$ undefined?

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16. For what x is the expression $\dfrac{x + 98}{x - 5}$ equal to 0?

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17. When is the expression $\dfrac{x + 98}{(x - 5)(x + 8)}$ undefined?

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18. When is the expression $\dfrac{3x + 9}{x^2 + 3x - 10}$ undefined?

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19. When is the expression $\dfrac{x^2 + 8}{x^2 + x - 20}$ undefined?

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20. When is the following expression undefined? And when is it equal to 0?

$$\frac{x^2 - 25}{x^2 - x - 20}$$