1. Simplify $\dfrac{-30x^2z^2}{-35xz^3}$.

   a) $\dfrac{6xz}{7}$

   b) $\dfrac{6x}{7z}$

   c) $\dfrac{-7x}{6z}$

   d) $\dfrac{-6x}{7z}$

2. Perform the indicated operation $\dfrac{9y^2}{x^2+12x+36} \div \dfrac{12y}{x^2+6x}$.

   a) $\dfrac{108y^3}{x(x+6)^3}$

   b) $\dfrac{3xy}{4(x+6)}$

   c) $\dfrac{3xy^2}{(x+6)}$

   d) $\dfrac{3(x+6)}{4xy}$

3. Simplify the complex fraction $\dfrac{\frac{1}{x}+\frac{1}{y}}{2}$.

   a) $\dfrac{x+y}{2}$

   b) $x+y$

   c) $2x+2y$

   d) $\dfrac{x+y}{2xy}$

4. Simplify $\dfrac{9}{x^2-x} - \dfrac{2}{x}$.

   a) $\dfrac{7x-2x^2}{x-1}$

   b) $7-2x$

   c) $\dfrac{11-2x}{x(x-1)}$

   d) $11-2x$

5. Solve $\dfrac{5y-4}{6y^2+y-12} - \dfrac{2}{2y+3} = \dfrac{5}{3y-4}$.

   a) $\{27\}$

   b) $\left\{-\dfrac{27}{11}\right\}$

   c) $\left\{-\dfrac{15}{11}\right\}$

   d) $\{-1\}$

6. Solve for N in terms of V, C, and T: $V = C\left(1-\dfrac{T}{N}\right)$.

   a) $N = \dfrac{V}{C} - T$

   b) $N = \dfrac{CT}{C-V}$

   c) $N = \dfrac{CT}{V-C}$

   d) $N = T - \dfrac{V}{C}$

7. Simplify $\left(\dfrac{6x^{-2}}{2x^4}\right)^{-2}$.

   a) $3x^{12}$

   b) 3

   c) $\dfrac{1}{9x^4}$

   d) $\dfrac{x^{12}}{9}$

8. Express $x^{-2} - y^{-3}$ as a single fraction with positive exponents.

   a) $\dfrac{1}{x^2y^3}$

   b) $\dfrac{x^2-y^3}{x^2y^3}$

   c) $\dfrac{2}{x^2y^3}$

   d) $\dfrac{y^3-x^2}{x^2y^3}$

9. Simplify $\dfrac{3\sqrt{7}}{2\sqrt{18}}$.

   a) $\dfrac{\sqrt{14}}{4}$

   b) $\dfrac{\sqrt{7}}{6}$

   c) $\dfrac{3\sqrt{7}}{12}$

   d) $\dfrac{\sqrt{14}}{36}$

10. Simplify $\sqrt{24x^5y^4}$.

    a) $4x^2y^2\sqrt{6}$

    b) $12x^2y^2\sqrt{x}$

    c) $2x^2y^2\sqrt{6x}$

    d) $4x^2y^2\sqrt{3x}$

11. Find the product and simplify $(\sqrt{2x}+\sqrt{3y})(\sqrt{2x}-\sqrt{3y})$

a) $4x^2-9y^2$

b) $4x^2+9y^2$

c) $2x-3y$

d) $2x+3y$

12. How many solutions does the equation $\sqrt{y}+6=y$ have?

a) 0

b) 1 only

c) 2

d) There are an infinite number of solutions.

13. Evaluate $-16^{\frac{3}{4}}$.

a) -8

b) 64

c) $8i$

d) $32i$

14. Write $(3-7i)^2$ in standard form.

a) $9+7i$

b) $58-42i$

c) $-40-42i$

d) $9-91i$

15. Solve $x(x+8)=-23$.

a) $\{-4\pm i\sqrt{7}\}$

b) $\{0,-8\}$

c) $\{0,8\}$

d) $\{-8\pm i\sqrt{7}\}$

16. Find the sum of the roots of the quadratic equation $6x^2-4x=3$.

a) $\frac{\sqrt{22}}{3}$

b) $\frac{2}{3}$

c) $\frac{1}{2}$

d) $4+\frac{\sqrt{22}}{3}$

17. Solve $n-\frac{2}{n}=-\frac{7}{3}$.

a) $\{-3,\frac{2}{3}\}$

b) $\{-3\}$

c) $\{3,\frac{4}{3}\}$

d) $\{3\}$

18. Solve the inequality $3x^2+14x-5>0$.

a) $\left(\infty,-\frac{1}{3}\right)\cup(5,\infty)$

b) $(-\infty,-5)\cup\left(\frac{1}{3},\infty\right)$

c) $\left(-5,\frac{1}{3}\right)$

d) $\left(-\frac{1}{3},5\right)$

19. Solve the inequality $\frac{x-1}{x+3}\leq 0$.

a) $(-3,1]$

b) $(-\infty,-3)\cup[1,\infty)$

c) $[-3,1]$

d) $(-\infty,-3)\cup(1,\infty)$

20. The graph of $y=(x-3)^2-1$ is the basic parabola moved

a) 3 units to the left and 1 unit down.

b) 1 unit to the left and 3 units up.

c) 3 units to the right and 1 unit down.

d) 1 unit to the right and 3 units up.

21. Find the vertex of the parabola $y=-2(x+4)^2+3$.

a) $(3,4)$

b) $(-8,3)$

c) $(-4,3)$

d) $(4,3)$

22. Write the equation of the circle with center $(-4,1)$ and radius 8.

a) $x^2+y^2+8x-2y-47=0$

b) $x^2+y^2+8x-2y-13=0$

c) $x^2+y^2+4x-y-13=0$

d) $x^2+y^2+4x-y-47=0$

23. Find the center and length of the radius of the circle $x^2+y^2-12x+16y=0$.

a) center $(-6,8)$; radius 10

b) center $(6,-8)$; radius 6

c) center $(6,-8)$; radius 8

d) center $(6,-8)$; radius 10

24. Find the center of the ellipse $4x^2-16x+y^2+6y+9=0$.

a) $(4,-3)$

b) $(4,3)$

c) $(2,-3)$

d) $(-2,3)$

25. Find the coordinates of the endpoints of the major axis of the ellipse $9x^2+4y^2=16$.

a) $(\frac{3}{4},0)$, $(-\frac{3}{4},0)$

b) $(\frac{4}{3},0)$, $(-\frac{4}{3},0)$

c) $(0,-2)$, $(0,2)$

d) $(0,-4)$, $(0,4)$

26. Find the equations for the asymptotes of the hyperbola $x^2-9y^2=36$.

a) $y=\frac{1}{3}x$; $y=-\frac{1}{3}x$

b) $y=3x$; $y=-3x$

c) $y=\frac{1}{3}x$; $y=-\frac{1}{4}x$

d) $y=4x$; $y=-4x$

27. Find the intercepts for the graph of $25x^2-16y^2=50$.

a) $\left(0,\frac{5\sqrt{2}}{4}\right)$ and $\left(0,\frac{-5\sqrt{2}}{4}\right)$

b) $\left(\sqrt{2},0\right)$ and $(-\sqrt{2},0)$

c) $\left(0,\frac{25}{8}\right)$ and $\left(0,-\frac{25}{8}\right)$

d) $\left(\frac{5\sqrt{2}}{4},0\right)$ and $\left(-\frac{5\sqrt{2}}{4},0\right)$

28. Solve the system $\begin{pmatrix}3x-7y=2\\x+4y=1\end{pmatrix}$.

a) $\left(2,\frac{4}{7}\right)$

b) $\left(\frac{15}{19},\frac{1}{19}\right)$

c) $(-7,2)$

d) The system has no solution.

29. The cost of 3 apples and 2 oranges is \$7. The cost of 6 apples and 3 oranges is \$12. Find the cost of 1 orange.

a) \$0.5

b) \$1.00

c) \$1.50

d) \$2.00

30. Solve the system $\begin{pmatrix}\frac{x-2}{4}+\frac{y+1}{3}=2\\\frac{x+1}{7}+\frac{y-3}{2}=\frac{1}{2}\end{pmatrix}$.

a) $\left(1,\frac{23}{4}\right)$

b) $(2,5)$

c) $(6,2)$

d) The system has no solution.

FINAL EXAM-SAMPLE B

1. B 2. B 3. D 4. C 5. D 6. B 7. D 8. D 9. A 10. C 11. C 12. B 13. A 14. C 15. A 16. B 17. A 18. B 19. A 20. C 21. C 22. A 23. D 24. C 25. C 26. A 27. B 28. B 29. D 30. C