

Exam 1 Review

MAT 1275 Spring 2022

1. Evaluate:

$$\left(\frac{2^{-1}}{5^{-2}}\right)^2$$

2. Simplify. Express your solutions using positive exponents only.

(a) $\frac{a^3b^{-2}}{a^{-2}b^{-4}}$

(b) $(3ab^{-1})(4a^{-3}b^3)$

(c) $\frac{-84ab^{-5}}{6a^3b^{-7}}$

(d) $\left(\frac{25x^{-1}y^{-5}}{x^{-4}x^{-6}}\right)^{-2}$

3. Lines.

(a) Write an equation of the line with slope $m = -5$ that passes through the point $(3, -7)$. Write the equation in slope-intercept form.

(b) Write an equation of the line parallel to the line above passing through the same point. Write the equation in slope-intercept form.

(c) Write the equation of the line passing through the points $(-3, 9)$ and $(-2, 5)$. Write the equation in $Ax + By = C$ form.

4. Solve these systems of equations. Be sure to check your solution.

(a)

$$\begin{aligned}x + 3y &= 7 \\2x - 3y &= -4\end{aligned}$$

(b)

$$\begin{aligned}-3x + 5y &= 5 \\2x - 3y &= -2\end{aligned}$$

(c)

$$\begin{aligned}x + 2y - 3z &= 2 \\-2x + y + 2z &= 12 \\3x - 4y + z &= -24\end{aligned}$$

5. Factor.

(a) $6x^2 - 2x - 20$

(b) $18y^4 + 21y^3 - 60y^2$

(c) $50 - 8y^2$

6. Solve.

(a) $3x^3 - 12x = 0$

(b) $x^2 - 5x = 24$

(c) $5x^2 - 6x - 8 = 0$

(d) $9x^2 + 7x = -2$