

Review Sheet Exam 1

Show all work to receive full credit. Please put a box around your final answer.

You will receive points if you are able to write down your thoughts using the 6-point process:

- | | | |
|---------------|-----------------|---------------------------|
| 1. Context | 2. Observations | 3. Questions (at least 3) |
| 4. Strategies | 5. Concepts | 6. Conclusions |

Simplify Completely

$$1) \left(\frac{7a^3b^{-5}}{3a^{-6}b^{-3}} \right)^{-3}$$

$$2) \left(\frac{8x^{-4}y^6}{5x^{-10}y^{-5}} \right)^2$$

$$3) \frac{6x^2 - 24x - 30}{5x^2 - 25x}$$

$$4) \frac{4x^2 + 8x - 192}{3x^2 + 24x}$$

Factor Completely

$$5) x^{10} - 64y^2$$

$$6) 36x^{36} - 49$$

$$7) x^2 - 7x - 30$$

$$8) x^2 + 3x - 54$$

$$9) 4x^2 + 13x - 12$$

$$10) 3x^2 - 19x + 6$$

$$11) 32x^9 + 8x^5 - 64x^{13}$$

$$12) 72 + 36y^{10} + 60y^2$$

For $f(x) = -6(1 - x) + x^4$,

$$13) \text{ Evaluate } f(-3)$$

$$14) \text{ Evaluate } f(5)$$

Perform the indicated operation and express your answer in simplest form.

$$15) \frac{d+3}{5d+20} * \frac{d^2-4}{d^2+5d+6}$$

$$16) \frac{x^2+4x}{x^3-5x^2} * \frac{27x-135}{3x+12}$$

$$17) \frac{x^2-5x-6}{5x+15} \div \frac{x^2-3x-4}{7x+21}$$

$$18) \frac{9p-18}{4p-12} \div \frac{p^2-4p+4}{p^2-6p+9}$$

$$19) (10x^3 - x^2 - 38x + 14) \div (5x - 3)$$

$$20) (3x^3 - 10x^2 + 15x - 7) \div (x - 2)$$

$$21) -\frac{3}{10} - \left(-\frac{8}{15}\right)$$

$$22) -\frac{5}{6} \div \left(-\frac{10}{8}\right)$$

$$23) -\frac{4}{7} + \left(-\frac{1}{5}\right)$$

$$24) -\frac{8}{3} \div \frac{7}{12}$$

Answer Key

1) $\frac{27b^6}{343a^{27}}$

3) $\frac{6(x+1)}{5x}$

5) $(x^5 + 8y)(x^5 - 8y)$

7) $(x + 3)(x - 10)$

9) $(4x - 3)(x + 4)$

11) $8x^5(4x^4 + 1 - 8x^8)$

13) 57

15) $\frac{d-2}{5d+20}$

17) $\frac{7(x-6)}{5(x-4)}$

19) $2x^2 + x - 7 \text{ rem: } -7$

21) $\frac{7}{30}$

23) $-\frac{27}{35}$

2) $\frac{64x^{12}y^{22}}{25}$

4) $\frac{4(x+1)}{3x}$

6) $(6x^{18} - 7)(6x^{18} + 7)$

8) $(x - 3)(x + 9)$

10) $(x - 6)(3x - 1)$

12) $12(6 + 3y^{10} + 5y^2)$

14) 649

16) $\frac{9}{x}$

18) $\frac{9(p-3)}{4(p-2)}$

20) $3x^2 - 4x + 7 \text{ rem: } 7$

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

24) $-\frac{32}{7}$