

Review Sheet Exam 2

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

$$1) \left(\frac{4x^2b^{-8}}{7x^{-9}b^{-4}} \right)^{-2}$$

$$2) \left(\frac{2n^{-3}y^{-7}}{5n^{-8}y^3} \right)^{-3}$$

$$3) \frac{4x^2 - 12x - 72}{5x^2 + 15x}$$

$$4) \frac{2x^2 - 6x - 8}{3x^2 + 3x}$$

$$5) \frac{\frac{4a}{b} - a}{a - \frac{9a}{b}}$$

$$6) \frac{\frac{9}{x^2} + \frac{1}{x}}{\frac{81}{x^2} - 1}$$

$$7) \sqrt{80a^{20}b^{19}c^9d^{36}}$$

$$8) \sqrt{99w^{11}x^{81}y^{64}z^8}$$

Perform the indicated operation and express your answer in $a + bi$ or simplest form.

$$9) \frac{5+9i}{-6-i}$$

$$10) \frac{-3+9i}{2-8i}$$

$$11) \frac{10}{\sqrt{14}-3}$$

$$12) \frac{42}{\sqrt{23}-4}$$

$$13) 4\sqrt{75} + 4\sqrt{27} - 3\sqrt{48}$$

$$14) 5\sqrt{150} + 4\sqrt{216} - 2\sqrt{24}$$

$$15) \text{ For } f(x) = \frac{-3(-x-4)}{4-a}, \text{ evaluate } f(-2)$$

$$16) \text{ For } g(a) = \frac{3(10-a)}{2(-a-8)}, \text{ evaluate } g(4)$$

Solve the equation. Where appropriate, express your answer in simplest form. Where appropriate, check your answer.

$$17) 3[4 - 2(x - 2)] = 3(2 - 4x)$$

$$18) 3(x - 5) - 5x = 2x + 9$$

$$19) 2x^2 + 23 = 14x$$

$$20) 3x^2 - 12x + 4 = 0$$

$$21) x + \frac{25}{x} = 10$$

$$22) \frac{6}{x} - \frac{5}{x-6} + 1 = 0$$

$$23) \sqrt{3x-5} - 5 = 3$$

$$24) 2\sqrt{x+3} - x = 0$$

Solve the quadratic equation by completing the square.

$$25) x^2 - 8x - 8 = 0$$

$$26) x^2 + 12x + 4 = 0$$

Express in exponential notation.

$$27) \sqrt[10]{n^3}$$

$$28) \sqrt[4]{x^5}$$

Answer Key

1) $\frac{49b^8}{16x^{22}}$

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

5) $\frac{4-b}{b-9}$

7) $4a^{10}b^9c^4d^{18}\sqrt{5bc}$

9) $-\frac{39}{37} - \frac{49}{37}i$

11) $2\sqrt{14} + 6$

13) $20\sqrt{3}$

15) $\frac{6}{6} = 1$

17) $x = -3$

19) $x = \frac{7 \pm \sqrt{3}}{2}$

21) $x = 5$

23) $x = 23$

25) $x = 4 \pm 2\sqrt{6}$

27) $n^{\frac{3}{10}}$

2) $\frac{125y^{30}}{8n^{15}}$

4) $\frac{2(x-4)}{3x}$

6) $\frac{1}{9-x}$

8) $3w^5x^{40}y^{32}z^4\sqrt{11wx}$

10) $-\frac{39}{34} - \frac{3}{34}i$

12) $6\sqrt{23} + 24$

14) $45\sqrt{6}$

16) $-\frac{3}{4}$

18) $x = -6$

20) $x = \frac{6 \pm 2\sqrt{6}}{3}$

22) $x = -4, x = 9$

24) ~~$x = -2$~~ , $x = 6$

26) $x = -6 \pm 4\sqrt{2}$

28) $x^{\frac{5}{4}}$