

Name _____ Date _____

Chapter 1 Review 3

Simplify.

$$1) \left(\frac{x^2 y^{-3}}{x^{-5} y} \right) \left(\frac{z^5}{x^{-1}} \right)^{-3}$$

$$2) \sqrt[3]{128a^7 b^2 c^9}$$

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

$$4) \frac{\frac{1}{3x} - \frac{4}{x+2}}{\frac{x}{x+2} + \frac{1}{x}}$$

Rationalize the denominator.

$$5) \frac{3x^2}{\sqrt[3]{9x^5}}$$

$$6) \frac{y}{\sqrt{3} + \sqrt{y}}$$

Multiply.

$$7) (x^2 y + xy^2)(x^2 y - xy^2)$$

$$8) (5x - 6y^3)^2$$

Factor.

$$9) x^3 - 5x^2 - 9x + 45$$

$$10) 27x^3 - 64y^9$$

11) $6x^2 - 41x - 7$

12) $2(a+b)^2 + 5(a+b) - 3$

Solve the equation.

13) $\frac{x+2}{x} = 1 + \frac{1}{x^2 + 2x}$

14) $-3 + \sqrt{4x+8} = x$

Solve the inequality. Use interval notation.

15) $x^2 - 3x - 18 \leq 0$

16) $\frac{x}{x+1} > 3$

17) Find the distance and midpoint between $(2,3);(4,-5)$

18) Write the equation of the circle in standard form. State the center and the radius.

$$x^2 + y^2 - 12x + 18y - 4 = 0$$

19) Write the equation of the line passing through $(-3, -1)$ and $(-4, 3)$.

20) Write the equation of the tangent to the circle $(x - 2)^2 + (y + 3)^2 = 25$ at the point $(6, 0)$.

1) $\frac{x^4}{y^4 z^{15}}$

2) $4a^2 c^3 \sqrt[3]{2ab^2}$

3) x

4) $\frac{-11x+2}{3(x^2+x+2)}$

5) $\sqrt[3]{3x}$

6) $\frac{y(\sqrt{3}-\sqrt{y})}{3-y}$

7) $x^4 y^2 - x^2 y^4$

8) $25x^2 - 60xy^3 + 36y^6$

9) $(x-5)(x+3)(x-3)$

10) $(3x-4y^3)(9x^2+12xy^3+16y^6)$

11) $(6x+1)(x-7)$

12) $(2a+2b-1)(a+b+3)$

13) $\left\{-\frac{3}{2}\right\}$

14) $\{-1\}$

15) $[-3,6]$

16) $\left(\frac{-3}{2}, -1\right)$

17) $d = 2\sqrt{17} = (\sqrt{68})$
 $M(3,1)$

18) $\frac{c(6,-9)}{r=11}$

19) $y = -4x - 13$

20) $y = -\frac{4}{3}x + 8$