

Algebra Review

45. $(-3, 0)$ ← interval notation

$$-3 < x < 0 \quad \leftarrow \begin{array}{c} \text{---} \bullet \text{---} \bullet \text{---} \\ -3 \qquad 0 \end{array}$$

47. $[2, 8)$

$$2 \leq x < 8 \quad \leftarrow \begin{array}{c} \text{---} \bullet \text{---} \bullet \text{---} \\ 2 \qquad 8 \end{array}$$

1, 2 # 16(b) $\frac{10^7}{10^4} = 10^{7-4} = 10^3$

22(b) $\frac{\sqrt{48}}{\sqrt{3}} = \sqrt{\frac{48}{3}} = \sqrt{16} = 4$

23(b) $(-32)^{2/5} = (-2)^2 = 4$
take the 5th root square

$$-2^2 = -4$$

$$(-2)^2 = (-2)(-2) = 4$$

$$\# 24(b) \quad \left(\frac{-27}{8}\right)^{2/3} = \frac{(-27)^{2/3}}{8^{2/3}} = \frac{(-3)^2}{2^2}$$

$$(u+v)^3 \neq u^3+v^3 \quad = \frac{9}{4}$$

$$\# 44(b) \quad (2u^2v^3)^3 (3u^{-3}v)^2$$

$$2^3 \cdot (u^2)^3 (v^3)^3 \cdot 3^2 (u^{-3})^2 v^2$$

$$8 u^6 v^9 \cdot 9 u^{-6} v^2$$

$$72 u^0 v^{11}$$

$$\boxed{72 v^{11}}$$

0^0 is undefined

Why is $5^0 = 1$?

$$1 = \frac{5^4}{5^4} = 5^{4-4} = 5^0$$

$\boxed{1.3}$

#28

$$(4x-5y)(3x-y) = 12x^2 - 4xy - 15xy + 5y^2$$

$$= 12x^2 - 19xy + 5y^2$$

$$\#42. (x-3)^3 = \underbrace{(x-3)}_{1 \cdot 2 \cdot 1} \underbrace{(x-3)}_{3 \cdot 7} \underbrace{(x-3)}_{1 \cdot 2 \cdot 1}$$

$$= x^3 - (3x^2)3 + (9x)3 - 27$$

$$= x^3 - 9x^2 + 27x - 27$$

$$\#70. 6y^2 + 11y - 21 \quad \begin{matrix} 1 \cdot 2 \cdot 1 \\ 3 \cdot 7 \end{matrix}$$

$$= \cancel{(3y - 3)} \cancel{(2y + 3)} \text{ or } \underline{(6y - 7)(y + 3)}$$

Difference of Squares
 $a^2 - b^2 = (a - b)(a + b)$

$$\#76. (x+3)^2 - 4$$

$$= (x+3-2)(x+3+2)$$

$$= (x+1)(x+5)$$

$$\boxed{1.4} \#28 \quad \frac{x^2 - x - 6}{x^2 + 2x} \cdot \frac{x^3 + x^2}{x^2 - 2x - 3}$$

$$= \frac{\cancel{(x-3)} \cancel{(x+2)}}{\cancel{x} \cancel{(x+2)}} \cdot \frac{x \cancel{x^2} \cancel{(x+1)}}{\cancel{(x+1)} \cancel{(x-3)}}$$

$$= x, \quad x \neq 0, -1, -2, 3$$