

# Homework 09-08

More Practice

Factor completely.

1.  $12x^{\frac{3}{4}} + 6x^{\frac{1}{4}}$

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

2.  $-4(x^2+4)^{\frac{3}{2}} + (x^2+4)^{\frac{7}{2}}$

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

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

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

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

3.  $(4x-1)^{\frac{1}{2}} - \frac{1}{3}(4x-1)^{\frac{3}{2}}$

$$(4x-1)^{\frac{1}{2}}\left(1 - \frac{1}{3}(4x-1)\right)$$

$$(4x-1)^{\frac{1}{2}}\left(1 - \frac{4}{3}x + \frac{1}{3}\right)$$

$$(4x-1)^{\frac{1}{2}}\left(\frac{4}{3} - \frac{4}{3}x\right)$$

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

4.  $-8(4x+3)^{-2} + 10(5x+1)(4x+3)^{-1}$

$$2(4x+3)^{-2}(-4 + 5(5x+1)(4x+3))$$

$$2(4x+3)^{-2}(-4 + 5(20x^2 + 19x + 3))$$

$$2(4x+3)^{-2}(100x^2 + 95x + 11)$$

5.  $x^{\frac{3}{2}} + 2x^{\frac{1}{2}} + x^{\frac{1}{2}}$

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

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

6.  $(x^2+1)^{\frac{1}{2}} + 2(x^2+1)^{-\frac{1}{2}}$

$$(x^2+1)^{-\frac{1}{2}}(x^2+1+2)$$

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

7.  $2x^{\frac{1}{3}}(x-2)^{\frac{2}{3}} - 5x^{\frac{4}{3}}(x-2)^{-\frac{1}{3}}$

$$x^{\frac{1}{3}}(x-2)^{-\frac{1}{3}}(2(x-2)-5x)$$

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

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