

1. Simplify. Answers should not have negative or zero exponents.

a. $\frac{9}{x^{-3}}$

b. 4^{-2}

c. $\frac{a^{-2}}{5b^{-3}}$

2. Turn into scientific notation.

a. 377,900,000

b. 9,650

c. 0.000000126

3. Simplify.

a. $\frac{4x^3}{12x^7}$

b. $\left(\frac{3m^{-4}}{n^5}\right)^2$

c. $64^{\frac{1}{2}} - 27^{\frac{1}{3}}$

d. $16^{\frac{3}{2}} - 27^{\frac{2}{3}}$

e. $\sqrt{49x^{10}y^6}$

f. $\sqrt[3]{m^9n^{15}}$

4. Add or subtract.

a. $-6x^3 + 5x + 2x^3 + 8x^3$

b. $7xy - 4x^2y - 2xy$

c. $(5x^2 + 2x - 3) - (9x^2 - 4x - 1)$

d. $(7x^2 - 2x + 5) + (-3x^2 - 8x - 1)$

5. Multiply and simplify completely.

a. $(-2x^2y)(3x^4y)(2y)$

b. $3a(4a-2b+c)$

c. $-4x(3x^2-6x-1)$

d. $(3x-2)(5x+1)$

e. $(x+5)^2$

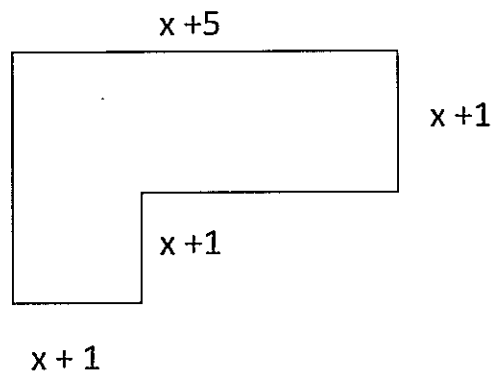
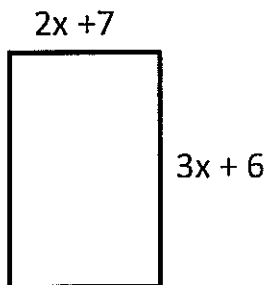
f. $(x+4y)(x-4y)$

g. $(5x^2-3)(5x^2+3)$

h. $(3x-4)^2$

i. $(2x+3)(x^2-6x-5)$

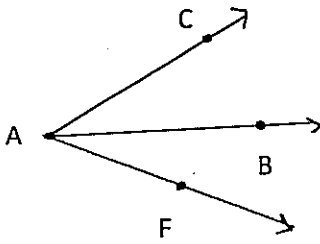
7. Find the area and/or perimeter of each shape below. Make sure to simplify your answers!



perimeter:

area:

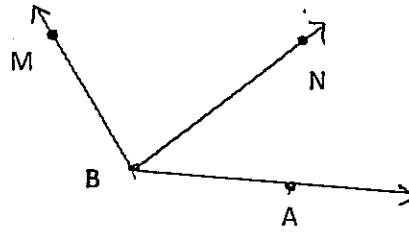
8. Find the angle indicated.



$$m\angle CAB = 6x + 3$$

$$m\angle FAB = 4x - 9$$

$$m\angle CAF = ?$$

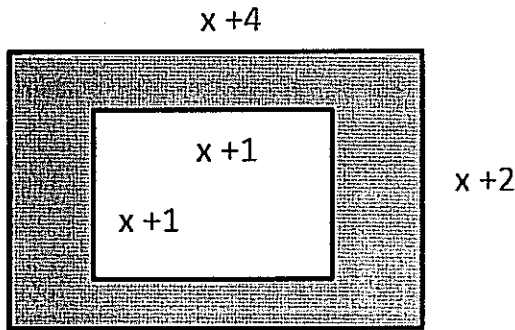


$$m\angle MBA = 4x^2 + 6x - 2$$

$$m\angle NBA = 2x^2 + 2x - 4$$

$$m\angle MBN = ?$$

9. Write a polynomial that describes the area of the shaded region.



10. Fill in the blanks.

a. $2x^2y \cdot \underline{\hspace{1cm}} = -6x^4y^5$

b. $(3x-2) \cdot \underline{\hspace{1cm}} = 6x^2 - 4x$

c. $(x-5) \cdot (\underline{\hspace{1cm}} + \underline{\hspace{1cm}}) = x^2 - 3x - 10$

d. $(x - \underline{\hspace{1cm}}) \cdot (x + \underline{\hspace{1cm}}) = x^2 + 3x - 10$