SECTION 4.2 - MULTIPLYING A POLYNOMIAL BY A MONOMIAL

REVIEW

(1) SIMPLIFY $\sqrt{96}$ (2) SIMPLIFY $(5x^2y)(2x^{-1}y^3)$

(3) PUT $3x + 4y = 12$ IN SLOPE-INTERCEPT FORM.

(4) WHAT IS THE SLOPE OF ANY LINE THAT IS PERPENDICULAR TO $4x + 3y = 24$?

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* TO FIND THE PRODUCT OF A POLYNOMIAL AND A MONOMIAL, YOU CAN USE THE DISTRIBUTIVE PROPERTY.

EXAMPLE 1. FIND $-3x^2(7x^2 - x + 4)$

HORIZONTAL METHOD

VERTICAL METHOD

APPLICATION 1. FIND EACH PRODUCT.

(1) $5a^2(-4a^2 + 2a - 7)$ (2) $-6d^3(3d^4 - 2d^3 - d + 9)$

(3) $20x(2x^2 + 3x + 5)$ (4) $3y^2(-3y^2 + 8)$

EXAMPLE 2. THE SAME METHOD CAN BE USED TO SIMPLIFY LARGE EXPRESSIONS.

SIMPLIFY $2p(-4p^2+5p)-5(2p^2+20)$

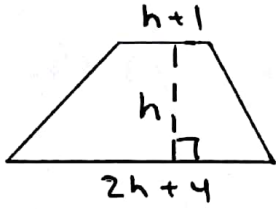
APPLICATION 2. FIND EACH PRODUCT.

(1) $3(5x^2+2x-4)-x(7x^2+2x-3)$

(2) $15+(10y^3+^5+5y^2+)-2y(y+^2+4y^2)$

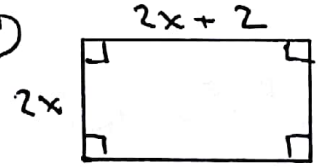
MULTIPLYING POLYNOMIALS + MONOMIALS CAN BE USED TO SOLVE REAL WORLD PROBLEMS.

EXAMPLE 3. FIND THE AREA OF THE TRAPEZOID SHOWN BELOW.

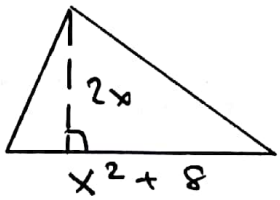


APPLICATION 3. FIND THE AREAS OF THE FIGURES.

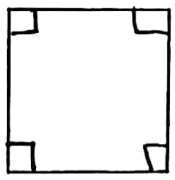
(1)



(2)



(3)



$P=8x$

WE CAN USE THE DISTRIBUTIVE PROPERTY TO SOLVE EQUATIONS THAT INVOLVE PRODUCTS OF MONOMIALS + POLYNOMIALS.

EXAMPLE 4. SOLVE

$$2a(5a-2)+3a(2a+6)+8=a(4a+1)+2a(6a-4)+50$$

APPLICATION 4. SOLVE.

(1) $2x(x+4)+7=(x+8)+2x(x+1)+12$

(2) $d(d+3)-d(d-4)=9d-16$

PRACTICE

(1) FIND EACH PRODUCT:

(A) $5w(-3w^2+2w-4)$

(B) $6g^2(3g^3+4g^2+10g-1)$

(C) $4km^2(8km^2+2k^2m+5k)$

(D) $-3p^4r^3(2p^2r^4-6p^6r^3-5)$

(E) $c^2d^3(5cd^7-3c^3d^2-4d^3)$

(2) SIMPLIFY EACH EXPRESSION:

(A) $+(4t^2+15t+4)-4(3t-1)$

(B) $x(3x^2+4)+2(7x-3)$

(C) $-2d(d^3c^2-4dc^2+2d^2c)+c^2(dc^2-3d^4)$

(D) $-5w^2(8w^2x-11wx^2)+6x(9wx^4-4w-3x^2)$

(3) SOLVE EACH EQUATION.

(A) $-6(11-2c)=7(-2-2c)$

(B) $+(2t+3)+20=2t+(t-3)$

(C) $-2(w+1)+w=7-4w$

(D) $a(a+3)+a(a-6)+35=a(a-5)+a(a+7)$