



## **Warm Up** **Grade 9**



Determine the product or the quotient.

a)  $(7r)(11)$

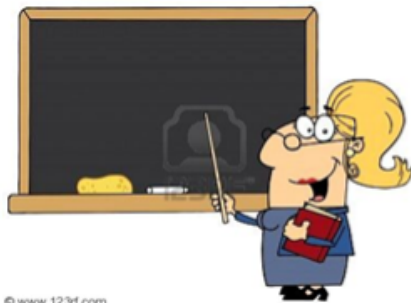
b)  $(6m^3 + 2m - 5)(-7)$

c) 
$$\frac{-81td - 72t + 90r}{-9}$$



Check you homework  
from the back of the textbook

Are there any questions that you  
would like me to complete on the  
board?



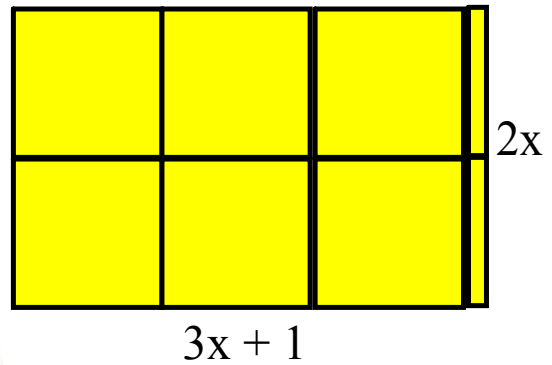
section 5.6

***Multiplying and Dividing a  
Polynomial by a Monomial***

$(3x + 1)(2x)$   
Is this possible?



Area = L x W



## SOME REVIEW

### Laws of Exponents

Remember...  $b^x \rightarrow$  "b raised to the power of x" where, b – base  
x – exponent

- #1. PRODUCT - when multiplying...  
"if the base is the same, then ADD the exponents."

$$b^m \times b^n = b^{m+n}$$

$$x^2 \times x^3 = x^{2+3} = x^5$$
$$(x \cdot x) \times (x \cdot x \cdot x) \rightarrow$$

- #2. QUOTIENT - when dividing...  
"if the base is the same, then SUBTRACT the exponents."

$$\frac{b^m}{b^n} = b^{m-n}, b \neq 0$$

$$\frac{x^6}{x^2} = x^{6-2} = x^4$$

$$\frac{x \cdot x \cdot x \cdot x \cdot \cancel{x} \cdot \cancel{x}}{\cancel{x} \cdot \cancel{x}} = x^4$$

# Multiplying a Monomial by a Monomial

Note:

Multiply coefficients with  
coefficients and variables  
with variables

Follow exponent laws for variable with the same base

$$(11)(5y^2) \\ = 55y^2$$

$$(-7n)(5n) \\ = -35n^2$$

$$(8m^5)(4m^2x) \\ = 32 m^7x$$

$6y^2 \cdot 7y^3$


$= 42y^5$  SMILE 😊

**Hint:**  
Coefficient and variables by their own kind

Just say your answer  
(Time is up)

Mrs. Johnson

# Multiplying a Binomial by a Monomial

$$(6x + 3)(5y)$$
$$= (6x + 3)(5y)$$


Each term inside the bracket must be multiplied by the monomial outside the brackets.

$$= 6x(5y) + 3(5y)$$

Still coefficients with coefficients and variables with variables.

$$= 30xy + 15y$$

## You Try!

1)  $12r(3r + 6)$

=

=

2)  $-5(4b - 11)$

=

=

3)  $6k^2(8fk^3 - 7k^5)$

=

=

# Dividing a Monomial by a Monomial

Note:

Divide coefficients with  
coefficients and variables  
with variables

Follow exponent laws for variables with the same base

$$1) \frac{-8x^2}{2x} = -4x^{2-1}$$
$$= -4x^1$$

$$2) \frac{150y}{25}$$
$$= 6y$$

# Dividing a Binomial by a Monomial

$$\frac{24p^2 - 14p}{2p}$$

Each term on the numerator must be divided by the monomial on the denominator.

$$\frac{24p^2}{2p} \quad \text{and} \quad \frac{-14p}{2p}$$

Recall:  
coefficients with  
coefficients and  
variables with  
variables.

$$= 12p - 7$$

You Try!

$$1) \quad \frac{72x - 48x^2}{12x}$$

Pg 255 #'s 9a, 10a,  
12, 16, 19