Warm Up
Grade 9

Determine the product or the quotient.
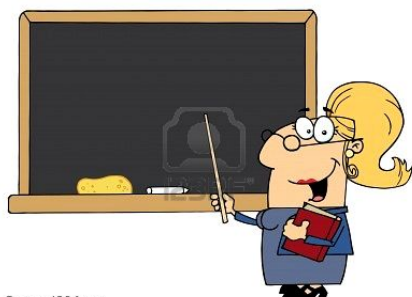
Constant

a) $(7r)(11)$

$77r$

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

$-42m^3 - 14m + 35$

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

$+ 9td + 8t - 10r$

Check you homework
from the back of the textbook

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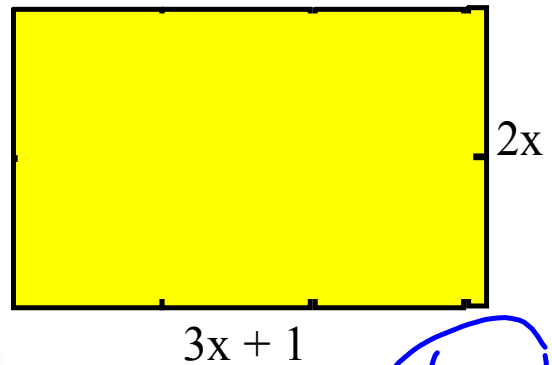would like me to complete on the
board?

Section 5.6
Multiplying and Dividing a Polynomial by a Monomial

(3x + 1) (2x)

Is this possible?

Area = L x W

2x

3x + 1

$A = 2(3x+1)$
$A = 6x+2.$

$A = 2x(3x+1)$
$A = 6x^2 + 2x$

SOME REVIEW

Laws of Exponents

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

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

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

$$4^3 \times 4^6 = 4^{3+6} = 4^9$$

$$4^3 \underset{exponent}{\underbrace{}}$$

Base

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

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

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

Multiplying a Monomial by a Monomial

5 is a coefficient.   1 term   1 term

constant

monomial

Note:
Multipy coefficients with coefficients and vaiables with variables

Follow exponent laws for variable with the same base.

$n \times n = n^{1+1} = n^2$ $m^5 \times m^2 = m^{5+2} = m^7$

$(11)(5y^2)$ $(-7n)(5n)$ $(8m^5)(4m^2x)$

$= 55y^2$ $= -35n^2$ $= 32m^7x$

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

$= 42y^5$ 😊

Hint:
Coefficient and variables by their own kind

Just say your answer
(Time is up)

My VideoMath

Multiplying a Binomial by a Monomial

Binomial   term: 3

terms are
seperated
by + -

Monomial   X
3x

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

multiply

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

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

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

Still coefficients with
coefficients and vaiables 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 vaiables
with variables

Follow exponent laws for varialbe with the same base

$$x^2 \div x^1 =$$
$$x^{2-1}$$
$$x^{2-1} = x$$

1) $\dfrac{-8\,x^2}{2\,x}$

$-4x$

2) $\dfrac{150\,y}{25}$

$6y$

Dividing a Binomial by a Monomial

Binomial

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

Monomial

) $ms^2 \times s$

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

$p^2 \div p^1 = p^2 \cdot p^1 \cdot p$

$p^1 \div p^1 = p^{1-1} = p^0 = 1$

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

Recall: coeffiecents with coefficents and variables with variables.

$12p - 7(1)$

$12p - 7$

$= 12p - 7$

You Try!

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

$x^1 \div x^1$
$= x^{1-1}$
$= x^0$
$= 1$

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

divide coefficents w/ coefficents.

$x^2 \div x^1$
$x^{2-1} = x^1$

$6(1) - 4x^1$

$6 - 4x$

Homework / Class work

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4, #6, #7, #11, #14, #16, 19, #21, #25