

Greatest Common Factor and Factoring
Topic 2 Homework

Name _____

Period _____

Find the Greatest Common Factor

1. 32 and 72

2. 84 and 56

3. 48, 64, and 128

Factor the GCF from the following Expressions

1. $12x + 20$

2. $30a - 60b$

3. $16m - 8n + 24p$

Circle the Correct Answer. For each incorrect answer, explain why it is incorrect.

Which pair of expressions below is equivalent?

A $x + y + x + y$ and $2(x + y)$

B $5(2x - 3y)$ and $10x - 3y$

C $4x - 5y$ and $5y - 4x$

D $9x + 2y$ and $11xy$

The expression below was simplified using two properties of operations.

Step 1 $5(11z + 6z + 29)$

Step 2 $5(17z + 29)$

Step 3 $85z + 145$

Which properties were applied in Steps 1 and 3, respectively?

- A commutative property, then distributive property
- B commutative property, then identity property
- C associative property, then distributive property
- D associative property, then commutative property

Which expression is equivalent to $3(6m) + m$?

- A $4(4a + 20b)$
- B $8(2a + 3b)$
- C $7m + 3$
- D $18m + 6m^2$

Which expression is equivalent to $16a + 24b$?

- A $8ab(2 + 3)$
- B $4a(4 + 6b)$
- C $8(2a + 3b)$
- D $19m$

Which expression is equivalent to $5(d + 1)$?

- A $5d + 5$
- B $5d + 1$
- C $d + 5$
- D $d + 6$

Find the Greatest Common Factor

1. 32 and 72

$$\begin{array}{r} 32 \quad 72 \\ \hline 2 \quad | \\ 4 \quad | \quad 16 \quad 36 \\ \hline 4 \quad 9 \end{array}$$

$\rightarrow \text{GCF} = 8$

2. 84 and 56

$$\begin{array}{r} 84 \quad 56 \\ \hline 2 \quad | \quad 42 \quad 28 \\ 2 \quad | \quad 21 \quad 14 \\ \hline 7 \quad | \quad 3 \quad 2 \end{array}$$

$\rightarrow \text{GCF} = 28$

3. 48, 64, and 128

$$\begin{array}{r} 48 \quad 64 \quad 128 \\ \hline 2 \quad | \quad 24 \quad 32 \quad 64 \\ 2 \quad | \quad 12 \quad 16 \quad 32 \\ 2 \quad | \quad 6 \quad 8 \quad 16 \\ \hline 3 \quad | \quad 4 \quad 8 \end{array}$$

$\rightarrow \text{GCF} = 16$

Factor the GCF from the following Expressions

1. $12x + 20$

$$\begin{array}{r} 12x + 20 \\ \hline 2 \quad | \quad 6x + 10 \\ 2 \quad | \quad 3x + 5 \end{array}$$

$4(3x + 5)$

2. $30a - 60b$

$$\begin{array}{r} 30a - 60b \\ \hline 10 \quad | \quad 3a - 6b \\ 10 \quad | \quad 3a - 6b \\ \hline 3 \quad | \quad a - 2b \end{array}$$

$30(a - 2b)$

3. $16m - 8n + 24p$

$$\begin{array}{r} 16m - 8n + 24p \\ \hline 2 \quad | \quad 8m - 4n + 12p \\ 2 \quad | \quad 4m - 2n + 6p \\ \hline 2 \quad | \quad 2m - n + 3p \end{array}$$

$8(2m - n + 3p)$

Circle the Correct Answer. For each incorrect answer, explain why it is incorrect.

Which pair of expressions below is equivalent?

check each one

A $x + y + x + y$ and $2(x + y)$

B $5(2x - 3y)$ and $10x - 3y$ Didn't Distribute the $5 \cdot 3y$

C $4x - 5y$ and $5y - 4x$ Can't use Commutative Prop with $-$

D $9x + 2y$ and $11xy$ Can't combine x 's and y 's

The expression below was simplified using two properties of operations.

$$5(11z + 29 + 6z)$$

Step 1 $5(11z + 6z + 29)$

Step 2 $5(17z + 29)$

Step 3 $85z + 145$

Which properties were applied in Steps 1 and 3, respectively?

- A commutative property, then distributive property
- B commutative property, then identity property
- C associative property, then distributive property
- D associative property, then commutative property

Which expression is equivalent to $3(6m) + m$?

- A $19m$
- B $21m$
- C $7m + 3$
- D $18m + 6m^2$

Which expression is equivalent to $16a + 24b$?

- A $4(4a + 20b) = 16a + 80b$
- B $8(2a + 3b) = 16a + 24b$
- C $4a(4 + 6b) = 16a + 24ab$
- D $8ab(2 + 3) = 16ab + 24ab$

Which expression is equivalent to $5(d + 1)$?

- A $5d + 5$
- B $5d + 1$
- C $d + 5$
- D $d + 6$