

Name: _____

Date: _____

Binary Operations

Solve the binary operations in each question.

1. If $a * b = 3a + 2b^2$, find

Ⓐ $2 * 2 =$ _____

Ⓒ $3 * 2 =$ _____

Ⓑ $1 * 4 =$ _____

Ⓓ $5 * 1 =$ _____

2. If $g \triangle h = g^2h$, find

Ⓐ $-3 \triangle 4 =$ _____

Ⓒ $5 \triangle (-3 \triangle 2) =$ _____

Ⓑ $7 \triangle 6 =$ _____

Ⓓ $(2 \triangle 1) \triangle 4 =$ _____

3. If $m \oplus n = (m - n)^2$, find

Ⓐ $8 \oplus 3 =$ _____

Ⓒ $-9 \oplus 4 =$ _____

Ⓑ $5 \oplus -2 =$ _____

Ⓓ $6 \oplus 7 =$ _____

4. If $c \sqcap d = c^3d$, then

Ⓐ $2 \sqcap 3 =$ _____

Ⓒ $4 \sqcap -5 =$ _____

Ⓑ $-9 \sqcap -1 =$ _____

Ⓓ $7 \sqcap 1 =$ _____

5. If $x \diamond y = \frac{x+y}{xy}$, then evaluate

Ⓐ r when $r \diamond 2 = 1$

$r =$ _____

Ⓒ k when $k \diamond 5 = \frac{11}{30}$

$k =$ _____

Ⓑ q when $4 \diamond q = \frac{3}{28}$

$q =$ _____

Ⓓ s when $-1 \diamond s = \frac{-4}{3}$

$s =$ _____

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Answers

1. If $a * b = 3a + 2b^2$, find

(a) $2 * 2 = \underline{14}$

(c) $3 * 2 = \underline{17}$

(b) $1 * 4 = \underline{35}$

(d) $5 * 1 = \underline{17}$

2. If $g \triangle h = g^2h$, find

(a) $-3 \triangle 4 = \underline{36}$

(c) $5 \triangle (-3 \triangle 2) = \underline{450}$

(b) $7 \triangle 6 = \underline{294}$

(d) $(2 \triangle 1) \triangle 4 = \underline{64}$

3. If $m \oplus n = (m - n)^2$, find

(a) $8 \oplus 3 = \underline{25}$

(c) $-9 \oplus 4 = \underline{169}$

(b) $5 \oplus -2 = \underline{49}$

(d) $6 \oplus 7 = \underline{1}$

4. If $c \sqcap d = c^3d$, then

(a) $2 \sqcap 3 = \underline{24}$

(c) $4 \sqcap -5 = \underline{-320}$

(b) $-9 \sqcap -1 = \underline{729}$

(d) $7 \sqcap 1 = \underline{343}$

5. If $x \diamond y = \frac{x+y}{xy}$, then evaluate

(a) r when $r \diamond 2 = 1$

$r = \underline{2}$

(c) k when $k \diamond 5 = \frac{11}{30}$

$k = \underline{6}$

(b) q when $4 \diamond q = \frac{3}{28}$

$q = \underline{-7}$

(d) s when $-1 \diamond s = \frac{-4}{3}$

$s = \underline{-3}$