Topic: Negative exponents

Question: Simplify the expression.

$$3^{-2}$$

Answer choices:

A -6

B -9

C $-\frac{1}{9}$

D $\frac{1}{9}$

Solution: D

First, we need to realize that

$$3^{-2}$$

is equal to

$$\frac{3^{-2}}{1}$$

We'll change the exponent in 3^{-2} from -2 to 2 and move the resulting expression from the numerator to the denominator.

$$\frac{1}{3^2}$$

$$\frac{1}{9}$$

Topic: Negative exponents

Question: Simplify the expression.

$$-2^{-3}$$

Answer choices:

A $-\frac{1}{8}$

B $\frac{1}{8}$

C 8

D -8

Solution: A

First, we need to realize that

$$-2^{-3}$$

is equal to

$$\frac{-2^{-3}}{1}$$

We'll change the exponent in 2^{-3} from -3 to 3 and move the resulting expression (including the negative sign out in front) from the numerator to the denominator.

$$\frac{1}{-2^{3}}$$

We have to apply the exponent before we apply the negative sign, so the expression becomes

$$\frac{1}{-8}$$

$$-\frac{1}{8}$$

Topic: Negative exponents

Question: Simplify the expression.

$$-(3^3)(5^{-2})$$

Answer choices:

A -675

B $-\frac{25}{27}$

C $-\frac{1}{225}$

D $-\frac{27}{25}$

Solution: D

First, we need to realize that $-(3^3)(5^{-2})$ is equal to

$$\frac{-(3^3)(5^{-2})}{1}$$

We'll change the exponent in the factor 5^{-2} from -2 to 2 and move the resulting factor (not including the negative sign out in front) from the numerator to the denominator.

$$\frac{-(3^3)}{5^2}$$

We have to apply the exponents before we apply the negative sign, so the expression becomes

$$\frac{-(3 \cdot 3 \cdot 3)}{5 \cdot 5}$$

$$\frac{-27}{25}$$

$$-\frac{27}{25}$$