Topic: Understood 1

Question: Choose an expression of equal value.

x

Answer choices:

A $\frac{x}{x}$

B $\frac{1x^1}{1}$

C $x \cdot x$

D 1

Solution: B

Answer choice A, x/x, simplifies to 1, which is not equal to x.

Answer choice C, $x \cdot x$, simplifies to x^2, which is not equal to x.

Answer choice D is 1, which is not equal to x.

The only answer choice that's equal to x is answer choice B, which we'll simplify one step at a time.

$$\frac{1x^1}{1}$$

$$\frac{1x}{1}$$

$$x$$

$$\frac{x}{1}$$

$$x$$

Topic: Understood 1

Question: Simplify the expression.

$$1(1x+1^1)-\frac{1}{1(-1x^1)}$$

Answer choices:

A $x+1+\frac{1}{x}$

B $x+1-\frac{1}{x}$

C $1(x+1)-\frac{1}{1x}$

D $1(x^1+1)-\frac{1}{1x^1}$

Solution: A

The idea of the "understood 1" is that we can multiply by 1, divide by 1, or raise something to the first power, and none of those operations changes the value.

It's unnecessary to write the 1 in these situations, so we'll simplify this expression one step at a time.

$$1(1x+1^1)-\frac{1}{1(-1x^1)}$$

$$(1x+1^1)-\frac{1}{1(-1x^1)}$$

$$(x+1^1)-\frac{1}{1(-1x^1)}$$

$$(x+1)-\frac{1}{1(-1x^1)}$$

$$(x+1)-\frac{1}{(-1x^1)}$$

$$(x+1)-\frac{1}{(-x^1)}$$

$$(x+1)-\frac{1}{(-x)}$$

$$x+1+\frac{1}{x}$$

Topic: Understood 1

Question: Which of these expressions, if any, would not be equal to xy?

Answer choices:

A $1x^1y^1$

B $\frac{x^1y}{1}$

C $\frac{1xy^1}{1}$

D $1 + 1x^1y^1$

Solution: D

Any number or variable can be thought of as having an understood 1 as a coefficient, an exponent, or a divisor. Writing the 1 in any of those positions won't change the value.

On the other hand, answer choice D shows adding 1, which would definitely change the value of the expression.