Name: _____

A.APR.D.6: Expressions with Negative Exponents 2

1 Which expression is equivalent to x^{-4}?

1) $\frac{1}{x^4}$
2) x^4
3) $-4x$
4) 0

2 Which expression is equivalent to $x^{-1} \cdot y^2$?

1) xy^2
2) $\frac{y^2}{x}$
3) $\frac{x}{y^2}$
4) xy^{-2}

3 The expression $(2a)^{-4}$ is equivalent to

1) $-8a^4$
2) $\frac{16}{a^4}$
3) $-\frac{2}{a^4}$
4) $\frac{1}{16a^4}$

4 The expression $(3c)^{-2}$ is equivalent to

1) $-6c^2$
2) $\frac{1}{3c^2}$
3) $\frac{1}{9c^2}$
4) $\frac{3}{c^2}$

5 Which expression is equivalent to $\left(3x^2\right)^{-1}$?

1) $\frac{1}{3x^2}$
2) $-3x^2$
3) $\frac{1}{9x^2}$
4) $-9x^2$

6 Which expression is equivalent to $(5^{-2}a^3b^{-4})^{-1}$?

1) $\frac{10b^4}{a^3}$
2) $\frac{25b^4}{a^3}$
3) $\frac{a^3}{25b^4}$
4) $\frac{a^2}{125b^5}$

7 Which expression is equivalent to $\frac{2x^{-2}y^{-2}}{4y^{-5}}$?

1) $\frac{y^3}{2x^2}$
2) $\frac{2y^3}{x^2}$
3) $\frac{2x^2}{y^3}$
4) $\frac{x^2}{2y^3}$

Name: _____

8 The expression $\frac{a^2b^{-3}}{a^{-4}b^2}$ is equivalent to

1) $\frac{a^6}{b^5}$
2) $\frac{b^5}{a^6}$
3) $\frac{a^2}{b}$
4) $a^{-2}b^{-1}$

9 Which expression is equivalent to $\frac{x^{-1}y^4}{3x^{-5}y^{-1}}$?

1) $\frac{x^4y^5}{3}$
2) $\frac{x^5y^4}{3}$
3) $3x^4y^5$
4) $\frac{y^4}{3x^5}$

10 Which expression is equivalent to $\frac{x^{-1}y^2}{x^2y^{-4}}$?

1) $\frac{x}{y^2}$
2) $\frac{x^3}{y^6}$
3) $\frac{y^2}{x}$
4) $\frac{y^6}{x^3}$

11 If $a = -2$ and $b = -3$, what is the value of the expression $\frac{c^a}{c^b} - \frac{c^b}{c^a}$, when $c \neq 0$?

1) 0
2) $\frac{c^2+1}{c}$
3) $2c$
4) $\frac{c^2-1}{c}$

12 Which equation is equivalent to $y = 10^x$?

1) $y = -10^{-x}$
2) $y = 10^{-x}$
3) $y = \left(\frac{1}{10}\right)^{-x}$
4) $y = \left(\frac{1}{10}\right)^{x}$

13 If n is a negative integer, then which statement is always true?

1) $6n^{-2} < 4n^{-1}$
2) $\frac{n}{4} > -6n^{-1}$
3) $6n^{-1} < 4n^{-1}$
4) $4n^{-1} > (6n)^{-1}$

14 Express $\frac{12x^{-5}y^5}{24x^{-3}y^{-2}}$ in simplest form, using only positive exponents.

15 Simplify the expression $\frac{3x^{-4}y^5}{(2x^3y^{-7})^{-2}}$ and write the answer using only positive exponents.

A.APR.D.6: Expressions with Negative Exponents 2
Answer Section

1 ANS: 1 REF: 010511a
2 ANS: 2 REF: 080119a
3 ANS: 4 REF: 061402a2
4 ANS: 3

$$(3c)^{-2} = \frac{1}{(3c)^2} = \frac{1}{9c^2}$$

REF: 060826a
5 ANS: 1 REF: 011402a2
6 ANS: 2

$$5^2 a^{-3} b^4 = \frac{25b^4}{a^3}$$

REF: 011514a2
7 ANS: 1 REF: 061324a2
8 ANS: 1 REF: fall0914a2
9 ANS: 1 REF: 061210a2
10 ANS: 4 REF: 061506a2
11 ANS: 4

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

REF: 061621a2
12 ANS: 3 REF: 019515siii
13 ANS: 3

$6n^{-1} < 4n^{-1}$. Flip sign when multiplying each side of the inequality by n, since a negative number.

$$\frac{6}{n} < \frac{4}{n}$$

$6 > 4$

REF: 061314a2
14 ANS:

$$\frac{y^7}{2x^2}$$

REF: 011731a2
15 ANS:

$$\frac{12x^2}{y^9} \cdot \frac{3x^{-4}y^5}{(2x^3y^{-7})^{-2}} = \frac{3y^5(2x^3y^{-7})^2}{x^4} = \frac{3y^5(4x^6y^{-14})}{x^4} = \frac{12x^6y^{-9}}{x^4} = \frac{12x^2}{y^9}$$

REF: 061134a2