

Name: _____
Date: _____
Class: _____

Algebra
Unit 6
HW 6-2

1) If $f(x) = 3x^{-2} + 2x^0$, find $f(4)$

$$\begin{aligned} f(4) &= 3(4)^{-2} + 2(4)^0 \\ &= 3\left(\frac{1}{16}\right) + 2(1) \\ &= \frac{3}{16} + 2 = \boxed{\frac{35}{16} = f(4)} \end{aligned}$$

2) Simplify (show your answer as a negative exponent and positive exponent).

$$\frac{x^2}{x^7} \quad x^{-5} \quad \text{or} \quad \frac{1}{x^5}$$

3) Find $f(0)$ if $f(x) = 16(2)^x$

$$\begin{aligned} f(0) &= 16(2)^0 \\ &= 16(1) \\ &= \boxed{f(0) = 16} \end{aligned}$$

4) Using the function in #3, find $f(-3)$

$$\begin{aligned} f(-3) &= 16(2)^{-3} \\ &= 16\left(\frac{1}{8}\right) \\ &= \boxed{f(-3) = 2} \end{aligned}$$

5) Rewrite without negative exponents: $x^{-2}y^4$

$$\begin{aligned} &\left(\frac{1}{x^2}\right)(y^4) \\ &= \boxed{\frac{y^4}{x^2}} \end{aligned}$$

6) Evaluate when $x = 3$: $8(x+11)^0 - 2x^0 + 6x$

$$\begin{aligned} & 8(3+11)^0 - 2(3)^0 + 6(3) \\ & 8(14)^0 - 2(1) + 18 \\ & 8(1) - 2 + 18 \end{aligned} \rightarrow \boxed{8 - 2 + 18 = 24}$$

7) Simplify (no negative exponents in answer): $\frac{6x}{2x^8} \cdot 3x^{-7}$

$$3\left(\frac{1}{x^7}\right) = \boxed{\frac{3}{x^7}}$$

8) Using $f(x) = 18(3)^{-x}$ find $f(-2) - f(2)$

$$\begin{aligned} f(-2) &= 18(3)^{-(-2)} \\ &= 18(3)^2 \\ &= 18 \cdot 9 \end{aligned}$$

$$f(-2) = 162$$

$$\begin{aligned} f(2) &= 18(3)^{-2} \\ &= 18\left(\frac{1}{9}\right) \end{aligned}$$

$$f(2) = 2$$

$$162 - 2$$

$$\boxed{160}$$