Algebra 2 Name KEY ID: 1

Fix #1-5 19

# Chapter 7 (7.1, 7.2, & 7.4) Practice Test

Date _____ Period ____

**Write each expression in radical form.**

1) $2^{\frac{7}{6}}$ $(\sqrt[6]{2})^7$

2) $6^{\frac{3}{2}}$ $(\sqrt{6})^3$ OR $(\sqrt[2]{6})^3$ Remember ( )'s

3) $(5m)^{\frac{5}{2}}$ $(\sqrt{5m})^5$ OR $(\sqrt[2]{5m})^5$

4) $(5x)^{\frac{1}{4}}$ $\sqrt[4]{5x}$

**Write each expression in exponential form.**

5) $(\sqrt[3]{2p})^4$ $(2p)^{\frac{4}{3}}$

6) $\sqrt[4]{5}$ $5^{\frac{1}{4}}$

implied 2

7) $(\sqrt{6})^5$ $6^{\frac{5}{2}}$

8) $\sqrt{3x}$ $(3x)^{\frac{1}{2}}$

MUST USE ( )'S WITH A NUMBER+VARIABLE

**Evaluate without a calculator. Clearly show work!!**

9) $81^{\frac{3}{4}}$ 27

WORK

$3 \cdot 3 \cdot 3 \cdot 3 = 81$ ✓

Need 4 Factors

$(3)^3 = 27$

10) $16^{\frac{3}{2}}$ 64

WORK

$4 \cdot 4 = 16$ ✓

Need 2 factors

$(4)^3 = 64$

**Evaluate with a calculator. Round to 2 decimals.**

11) $49^{\frac{3}{2}}$ 343

Calc: 49 ^ (3/2)

12) $8^{-\frac{5}{3}}$ $\frac{1}{32}$ = .03

WRITE EXPRESSIONS H → L EXPONENTS!!

**Perform the indicated operation. SHOW WORK!!!! Circle the answer**

13) $g(x) = 3x - 2$
$f(x) = -2x + 1$
Find $g(x) + f(x)$

$x - 1$

USE ()'s

$(3x-2)+(-2x+1)=$

$x-1$

Show this work!

14) $g(x) = 4x - 1$
$f(x) = x^2 - 4x$
Find $g(x) - f(x)$

$-x^2 + 8x - 1$

$(4x-1)-(x^2-4x)$

$4x-1-x^2+4x=$

$-x^2+8x-1$

Rewrite subtraction to Addition

15) $g(n) = 3n - 1$
$h(n) = -3n^2 + n - 3$
Find $g(n) - h(n)$

$3n^2 + 2n + 2$

$(3N-1)-(-3N^2+N-3)=$

$3N-1+3N^2-N+3=$

$3N^2+2N+2$

Show this work!

16) $h(x) = -4x$
$g(x) = x^3 - 3x^2$
Find $h(x) \cdot g(x)$

$-4x^4 + 12x^3$

$-4x(x^3-3x^2)=$

$-4x^4+12x^2$

17) $g(x) = x - 5$
$h(x) = 3x + 1$
Find $g(x) \cdot h(x)$

$3x^2 - 14x - 5$

$(x-5)(3x+1)=$

$3x^2+x-15x-5=$

$3x^2-14x-5$

show this step!

you can do this step mentally

18) $g(x) = 3x - 5$
$f(x) = -2x^2 - 3 + 2x$
Find $g(x) \cdot f(x)$

$-6x^3 + 16x^2 - 19x + 15$

$(3x-5)(-2x^2+2x-3)$

$-6x^3+6x^2-9x$
$+10x^2-10x+15=$

$-6x^3+16x^2-19x+15$

Fix

19) $h(a) = a^3 - 5a^2 + 2a$
$g(a) = -2a$
Find $h(a) \div g(a)$

$2A^3-10A^2+4A$

$\frac{2a^3-10A^2+4A}{-2A}=$

$\frac{2A^3}{-2A}+\frac{-10A^2}{-2A}+\frac{4A}{-2A}=$

$-A^2+5A-2$

**GRAPH FUNCTION AND ITS INVERSE (Label the graphs)**

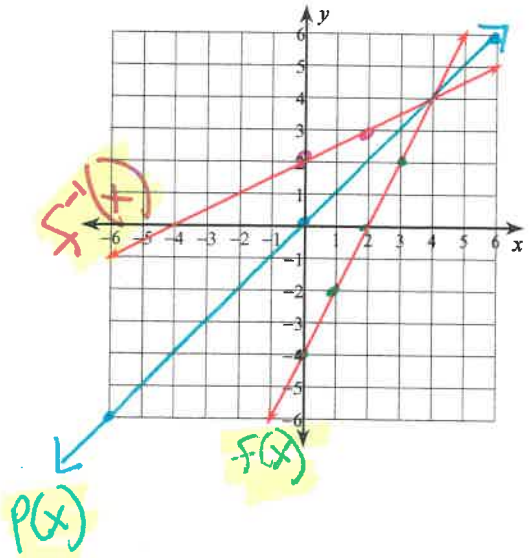
**1) Graph the function and label with function notation.**

**2) Graph p(x)=x and label.**

**3) Find the inverse of function. Then graph the inverse function and label with function notation.**

NOTICE
① LINES BOTH INTERSECT AT P(x)
② f(x) and $f^{-1}(x)$ ARE MIRROR IMAGES.

20) $f(x) = 2x - 4$ $m = \frac{2}{1}$ $b = -4$




$f^{-1}(x)$

$x = 2y - 4$

$+4 \quad +4$

$\frac{2y}{2} = \frac{x+4}{2}$

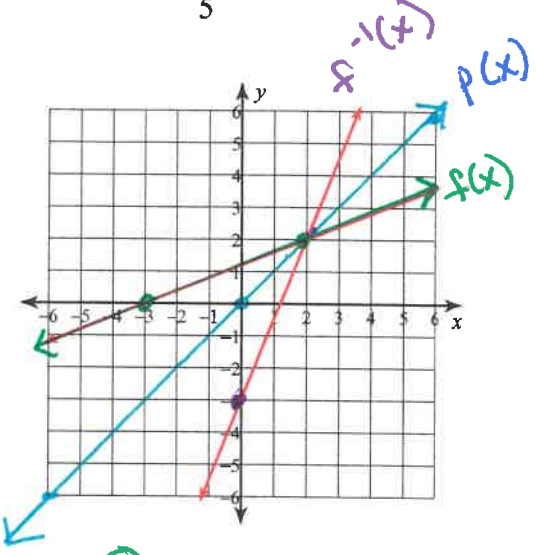
$y = \frac{1}{2}x + 2$

$f^{-1}(x) = \frac{1}{2}x + 2$

$m = 1/2$

$b = 2$

21) $f(x) = \frac{2x+6}{5}$




① $f(x) = \frac{2}{5}x + \frac{6}{5}$

Use Calc to find pts that are integers

| x | y |
|---|---|
| -3 | 0 |
| 2 | 2 |

② $p(x) = x \rightarrow y = x \quad m = 1/1 \quad b = 0$

$f^{-1}(x)$: OPTION 2

5. $x = \left(\frac{2y+6}{5}\right) \cdot 5$

$5x = 2y + 6$

$-6 \quad -6$

$\frac{2y}{2} = \frac{5x-6}{2}$

$y = \frac{5}{2}x - 3$

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

$m = 5/2 \quad b = -3$

Option 1
Table

| x | y |
|---|---|
| -3 | 0 |
| a | 2 |

Graph + write EQ of line

**Find the inverse of each function. Use function notation. Circle answer.**

22) $g(n) = -4n - 8$

$x = -4y - 8$

$+8 \quad +8$

$-4y = x + 8$

$\frac{-4y}{-4} = \frac{x}{-4} + \frac{8}{-4}$

$y = -\frac{1}{4}x - 2$ → $G^{-1}(N) = -\frac{1}{4}N - 2$

23) $f(n) = -\frac{2n}{3}$ → $\frac{-3}{2}(x) = \left(-\frac{2}{3}y\right)\frac{-3}{2}$

$y = \frac{-3}{2}x$

$f^{-1}(n) = \frac{-3}{2}n$

24) $h(n) = \frac{n+5}{2}$ → $2(x) = \left(\frac{y+5}{2}\right)2$

$2x = y + 5$

$-5 \quad -5$

$y = 2x - 5$

$h^{-1}(N) = 2N - 5$

25) $g(x) = \frac{20 + 5x}{4}$ → $4x = \left(\frac{20 + 5y}{4}\right)4$

$4x = 5y + 20$

$-20 \quad -20$

$\frac{5y}{5} = \frac{4x}{5} - \frac{20}{5}$

$y = \frac{4}{5}x - 4$

$g^{-1}(x) = \frac{4}{5}x - 4$

26) $f(n) = -\frac{1}{2}n - 3$ → $x = \frac{-1}{2}y - 3$

$+3 \quad +3$

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

$y = -2x - 6$

$f^{-1}(N) = -2N - 6$

27) $f(x) = -\frac{5}{4}x - 5$ → $x = \frac{-5}{4}y - 5$

$+5 \quad +5$

$-\frac{4}{5}\left(\frac{-5}{4}y = x + 5\right)$

$y = \frac{-4}{5}x + 5\left(\frac{-4}{5}\right)$

$y = \frac{-4}{5}x - 4$

$f^{-1}(x) = \frac{-4}{5}x -$