Math-3 Name_____ ID: 1

SM3 HW #4-8 (Unit 4 Test Preview HW)

Period____

Solve each question. Round your answer to the nearest hundredth.

1) It takes Rob ten hours to tar a roof. Kathryn can tar the same roof in 16 hours. How long would it take them if they worked together?

2) 5 lbs. of mixed nuts containing 75% peanuts were mixed with 20 lbs. of another kind of mixed nuts that contain 45% peanuts. What percent of the new mixture is peanuts?

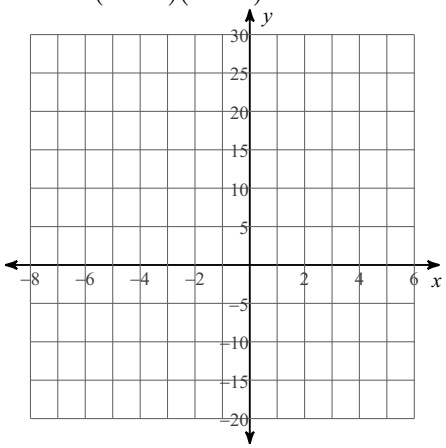
3) This is a "nice" 3rd degree polynomial (common factor)
(a) write the intercept form equation
(b) find the zeroes
$y = x^3 - 32x^2 + 60x$

4) a) Factor
b) Find the zeroes
$f(x) = 3x^3 - 5x^2 - 9x + 15$

5) a) Write in factored form.
b) Find the zeroes
$f(x) = x^4 - 11x^2 + 18$

6) a) Rewrite as a quotient (Plus remainder over divisor)
b) x-intercept?
c) y-intercept?
d) hole?
e) vertical asymptote?
f) Oblique asymptote?
g) Draw the graph

$$y = \frac{2x^3 + 10x^2 - 28x}{(x-2)(x+1)}$$



Perform the indicated operation. You must show your work to receive full credit for an answers ("one step rewrite"!)

7) $g(n) = 3n - 5$
$f(n) = n^2 - 3 + n$
Find $(g - f)(8)$

8) $g(t) = t^2 + 5t$
$h(t) = 4t + 3$
Find $(g \cdot h)(t)$

9) $g(x) = 4x - 4$
$h(x) = -2x^3 - 4$
Find $(-3g - 5h)(x)$

10) $f(n) = 3n - 1$
$g(n) = 3n - 4$
Find $(-4f + 3g)(4)$

Perform the indicated operation.

11) $g(n) = n + 1$
$h(n) = 3n^3 + 4n^2$
Find $(g \circ h)(n)$

12) $f(x) = -2x - 3$
Find $(f \circ f)(-5)$

a) Factor each trinomial (provide the intercept form of the equation).
b) Determine the "zeroes" of the equation (remember the Zero Product Property!)

13) $m^2 + 8m = 0$

14) $9v^2 + 24v + 7 = 0$

15) $8k^2 - 16k - 64 = 0$

Find the inverse of each function.

16) $g(x) = \dfrac{-4x + 8}{3}$

17) $f(x) = -\dfrac{3}{x + 1} + 2$

18) $f(x) = \sqrt[3]{x + 2} - 2$

19) $g(x) = \dfrac{2x}{3x + 2} + 1$

Solve each equation. Remember to check for extraneous solutions.

20) $x = \sqrt{-24 + 11x}$

21) $7 = \sqrt{-3 - 13x}$

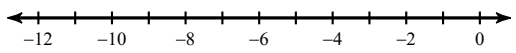
Solve each equation.

22) $n^{\frac{3}{2}} = 729$

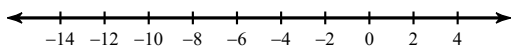
23) $-68 = -4 - 2k^{\frac{5}{4}}$

Solve each compound inequality and write its solution as
a) simplified inequality
b) graph
c) Interval notation.

24) $-5p \le 45$ and $5p < -10$



25) $x + 10 \ge 11$ or $-8x > 80$



26) Solve:
$(x + 2)(x - 5) \le 0$

27) $(4v - 1)(2v - 3) > 0$

Solve each inequality by using either (1) sign table or (2) a number line graph. Write your solution in interval notation.

28) $2x(2x + 1)(x - 6) < 0$

29) $3x^2(x - 4)^2(x + 2)(x - 6) > 0$

30) Solve the Inequalty

$$0 < \frac{(x-4)(x+3)(x-2)}{(x+5)(x-6)(x-2)}$$

31) Solve the Inequalty

$$0 > \frac{x(x-4)}{(x+6)(x-8)}$$

Solve each equation. Remember to check for extraneous solutions.

32) $\frac{1}{n^2} - \frac{1}{n} = \frac{1}{5n^2}$

33) $\frac{2}{x} = \frac{1}{x^2} + \frac{x+5}{2x^2}$