5.4 AA Quiz Review NAME _____

Find the sum or difference.

1. $\left(5h^3+8h-9\right)-\left(6h^3+6h-4\right)=$ $5h^3+8h-9-6h^3-6h+4$

(a.) $-h^3+2h-5$ c. $-h^3+14h-13$

b. $-h^3+2h-13$ d. $-h^3-2h-5$

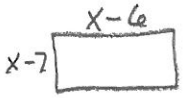
2. A rectangle has a length of $x-6$ and a width of $x-7$. Which equation below describes the perimeter, P, of the rectangle in terms of x?

a. $P=2x-13$

(b.) $P=4x-26$

c. $P=x^2-13x+42$

d. $P=x-13$



$2(x-6)+2(x-7)$

$2x-12+2x-14$

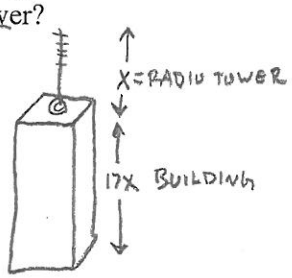
3. The volume of one of the buildings in the downtown area is 826,200 cubic meters. The building is 17 times as tall as the radio tower on top of the building. The square base has a side that is 30 times 3 meters less than the height of the radio tower. How tall is the radio tower?

(a.) 6 meters

b. 12 meters

c. 16 meters

d. 8 meters



$17X(30(x-3))^2=826,200$

$17X(30x-90)(30x-90)=826,200$

$17X(900x^2-5400x+8100)=826,200$

$15300x^3-91800x^2+137,700x-826,200=0$

$5x^3-30x^2+45x-270=0$

$x^2(5x-30)+9(5x-30)$

$(x^2+9)(5x-30)=0$

IMG $5x-30=0$ $x=6$

4. $3b^2\cdot 4b$

$12b^3$

5. $\left(3uv^5w\right)^4$

$3^4u^4v^{20}w^4$

$81u^4v^{20}w^4$

6. $\left(-2x^{-3}\right)^2$

$(-2)^2(x^{-3})^2=4x^{-6}$

$\frac{4}{x^6}$

7. $\frac{4x^3}{y^2}\cdot\frac{y^{-3}x^{-2}}{8x^{-1}}=\frac{4xy^{-3}}{8x^{-1}y^2}=\frac{1}{2}x^2y^{-5}$

$\frac{x^2}{2y^5}$

Complete the statement to describe the end behavior of the graph of the function.

8. $f(x)=-x^3+7x+4$ NEG & ODD

$f(x)\to$ ∞ (UP) as $x\to-\infty$ (LEFT) and $f(x)\to$ $-\infty$ (DOWN) as $x\to+\infty$. (RIGHT)

Find the product.

9. $(x-3)\left(x^2+4x+5\right)$

$X^3+4X^2+5X-3X^2-12X-15$

$X^3+X^2-7X-15$

Factor the polynomial completely.

10. $12x^4-42x^6$

$6X^4(2-7X^2)$

$6X^4(2-7X^2)$

11. $2z^8-6z^6-80z^4$

$2z^4(z^4-3z^2-40)$

$2z^4(z^2-8)(z^2+5)$

$2z^4(z^2-8)(z^2+5)$

12. $x^3-2x^2-9x+18$

$x^2(x-2)-9(x-2)$

$(x-2)(x^2-9)$

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

13. $64x^3-27y^3$ $A=4X$ $B=-3y$

$(4X-3y)(16X^2+12XY+9y^2)$

Find the real-number solutions of the equation.

14. ~~$x^3-5x^2+8x-4=0$~~ ← NOT NICE

NEW PROBLEM → $G^3+3G^2-G-3=0$

$G^2(G+3)-1(G+3)=0$

$(G^2-1)(G+3)=0$

$G=-1,1,-3$ $(G+1)(G-1)(G+3)=0$

$G=-1,1,-3$

Complete the table and graph the polynomial function.

Pos, ODD

15. $h(x) = x^3 - 3x^2 - 6x + 6$

x	–6	–2	0	2	6
y	-282	-2	6	-10	78