 Name Key

Quad Prep Unit Review

Date _____ Period ____

With each polynomial identify the following information.

1) $-3n + 0$

Number of Terms: 1

Type: Monomial Degree: 1st

Coefficient(s): -3 Constant: 0

2) $-5n^6 + 10$

Number of Terms: 2

Type: Binomial Degree: 6th

Coefficient(s): -5 Constant: 10

3) $-x^3 - 9x^2 + 6x - 2$

Number of Terms: 4

Type: Polynomial Degree: 3rd

Coefficient(s): -1, -9, 6 Constant: -2

4) $-10p^4 + 0$

Number of Terms: 1

Type: Monomial Degree: 4th

Coefficient(s): -10 Constant: 0

Add or subtract the polynomial expressions.

5) $-9x + 2(x + 3)$

$-9x + 2x + 6$

$-7x + 6$

6) $-9x - 9(x - 7)$

$-9x - 9x + 63$

$-18x + 63$

7) $-2(1 + 2r) - 10(7 + 5r)$

$-2 - 4r - 70 - 50r$

$-54r - 72$

8) $(x - 3x^2) + (x^2 - 4x)$

$-2x^2 - 3x$

9) $(7v^3 + 6 + 5v) - (5v^3 - 2)$

$7v^3 + 6 + 5v - 5v^3 + 2$

$2v^3 + 5v + 8$

10) $(8k^3 + 2k^2) + (4k^3 + 5 + 2k^2)$

$12k^3 + 4k^2 + 5$

Factor out the GCF of each expression.

11) $-35b^2 + 28$

$-7 \quad -7$

$-7(5b^2 - 4)$

12) $18n^5 - 18n^4 + 24n^3$

$6n^3 \quad 6n^3 \quad 6n^3$

$6n^3(3n^2 - 3n + 4)$

Find each product.

13) $-(-4 - 4v)$

$4 + 4v$

$4v + 4$

14) $7p(7p + 2)$

$49p^2 + 14p$

15) $(8a + 5)(7a + 5)$

$56a^2 + 40a + 35a + 25$

$56a^2 + 75a^2 + 25$

16) $(d + 1)(3a - 1)$

$3a^2 - a + 3a - 1$

$3a^2 + 2a - 1$

17) $(7k + 8)(2k^2 + 8k + 6)$

$14k^3 + 56k^2 + 42k + 16k^2 + 64k + 48$

$14k^3 + 72k^2 + 106k + 48$

18) $(7p^2 + 8p + 6)(3p - 8)$

$21p^3 + 24p^2 + 18p - 56p^2 - 64p + 48$

$21p^3 - 32p^2 - 46p + 48$

Simplify. Your answer should contain only positive exponents.

19) $\frac{(n^3)^3}{n^{-4}n^4} = \frac{n^9}{n^0} = \frac{n^9}{1} = n^9$

20) $\frac{m}{(m^4m^4)^2} = \frac{m}{(m^8)^2} = \frac{m}{(m)^{16}} = \frac{1}{m^{15}}$

21) $\frac{xx^{-4}}{(x^{-4})^0} = \frac{x^{1-4}}{1} = \frac{x^{-3}}{1} = \boxed{\frac{1}{x^3}}$

22) $\frac{x^{-1}x^0 \cdot x^1}{(x^{-3}x^3)^{-2}} = \frac{x^0}{(x^0)^2} = \frac{1}{1} = \boxed{1}$

23) $\frac{(xx^{-2})^2 \cdot x^{-1}x^{-2}}{x^0x^3} = \frac{x^2x^{-4}x^{-1}x^{-2}}{x^3}$

$= \frac{x^{-5}}{x^3}$

$= \boxed{x^{-8}}$

24) $\frac{(2v^3)^3}{v^{-4}v^{-3}v^2} = \frac{2^3v^9}{v^{-5}}$

$= 8v^9v^5 = \boxed{8v^4}$

25) $\frac{6x^{-2}}{2x^{-3}x^{-\frac{7}{4}}} = \frac{6}{2} \cdot \frac{x^{-2}}{x^{-\frac{12}{4}}x^{-\frac{7}{4}}}$

$-\frac{3}{1} = -\frac{12}{4}$

$= \frac{3x^{-\frac{8}{4}}}{x^{-\frac{19}{4}}}$

$= 3x^{-\frac{8}{4}}x^{\frac{19}{4}} = \boxed{3x^{\frac{11}{4}}}$

26) $\frac{3x^{\frac{2}{3}} \cdot (x^{\frac{6}{3}})^{\frac{5}{3}} \cdot 5x^0}{x^{-2}} = \frac{3 \cdot 5}{1} \cdot \frac{x^{\frac{2}{3}}x^{\frac{10}{3}}x^0}{x^{-2}}$

$= 15\frac{x^{\frac{12}{3}}}{x^{-2}} = \frac{15x^4}{x^{-2}} = \boxed{15x^2}$

27) $\frac{x^{\frac{1}{2}}x^{\frac{4}{2}}}{((9x)^0)^{\frac{1}{2}}} = \frac{x^{\frac{1}{2}}x^{\frac{4}{2}}}{1} = \boxed{x^{\frac{5}{2}}}$

28) $\frac{\left(x^{\frac{1}{2}}\right)^{-\frac{1}{2}} \cdot \left(xx^{\frac{2}{3}}\right)^{\frac{3}{4}}}{2x^{-\frac{1}{2}} \cdot 4x^{\frac{3}{4}}} = \frac{x^{-\frac{1}{4}}x^{\frac{3}{4}}x^{\frac{2}{4}}}{2 \cdot 4x^{-2/4}x^{3/4}}$

$= \frac{x^{\frac{4}{4}}}{8x^{\frac{4}{4}}} = \frac{x^{\frac{4}{4}}x^{-\frac{4}{4}}}{8} = \boxed{\frac{x^0}{8}}$

Write each expression in exponential form.

29) $\left(\sqrt[3]{10r}\right)^4 = (10r)^{\frac{4}{3}}$

30) $\left(\sqrt{6n}\right)^5 \quad (6n)^{\frac{5}{2}}$

Write each expression in radical form.

31) $r^{\frac{5}{6}} = \left(\sqrt[6]{r}\right)^5$

32) $(2x)^{\frac{3}{2}} = \left(\sqrt{2x}\right)^3$

Simplify the following.

33) $i^{35} = -i$

34) $i^{44} = 1$

$-i$ 1 i -1

Rewrite the following as imaginary.

35) $\sqrt{-72} = \sqrt{-1} \cdot \sqrt{72}$

i $\quad 36 \quad 6\sqrt{2}$

$6i\sqrt{2}$ $\quad (6)(6)$

36) $\sqrt{-141} = \sqrt{-1} \cdot \sqrt{141}$

$= i\sqrt{141}$

Add or subtract the following complex numbers.

37) $(2 + 5i) + (-3 + 8i)$

$-1 + 13i$

38) $(2 - i) - (-8 + 3i)$

$-6 + 2i$

39) $(-4 + 7i) + (6 - 7i)$

$2 + 0i$

$= 2$

40) $(6 + 8i) - (-1 - 2i)$

$6 + 8i + 1 + 2i$

$7 + 10i$

Multiply the following complex expressions. *Remember that $i^2 = -1$.

41) $(-1 + i)(-7 - 2i)$

$7 + 2i - 7i - 2i^2$ $\quad i^2 = -1$

$7 - 5i + 2(1)$

$9 - 5i$

42) $(-8 + 8i)^2 = (-8 + 8i)(-8 + 8i)$

$64 - 64i - 64i + 64(i^2)$

$64 - 128i - 64$

$-128i$

43) $(-1 + 6i)^2 = (-1 + 6i)(-1 + 6i)$

$1 - 6i - 6i + 36(i^2)$

$1 - 12i - 36$

$-35 - 12i$

44) $(-8 + 2i)(-5 + 8i)$

$40 - 64i - 10i + 16i^2$

$40 - 74i - 16$

$24 - 74i$