

Evens only

Secondary Math 2

Extra credit for every odd

Name Key

Unit 1 Algebra Basics Review

Date _____ Period _____

With each polynomial name the type, the degree, how many terms, all coefficients, and all constants.

Completion
/30

1) $-3x^2 + 5$

Number of terms: 2

Coefficients: -3

Constants: 5

Classify by terms: Binomial

Classify by degree: Quadratic

2) $x^4 + 6x^3 - 3x + 15$

Number of terms: 4

Coefficients: 1, 6, -3

Constants: 15

Classify by terms: Polynomial

Classify by degree: 4th degree

3) $x^6 - 5x^3 + 1$

Number of terms: 3

Coefficients: 1, -5

Constants: 1

Classify by terms: Trinomial

Classify by degree: 6th degree

4) $7x^3$

Number of terms: 1

Coefficients: 7

Constants: 0

Classify by terms: Monomial

Classify by degree: Cubic

5) Explain what it means for terms to be "like terms".

Same variable, same exponent

Simplify each expression.

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

$$-7x^3 - x^2 - 4x$$

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

$$-x^4 + 9x^2 + 4x$$

7) $(-7x^3 - 4x^2) + (x^3 + 6x^2 + 3x^4)$

$$3x^4 - 6x^3 + 2x^2$$

9) $(8n^4 - n^3) - (-3n^3 - n^4 + 8)$

$$9n^4 + 2n^3 - 8$$

Find each product.

10) $(7n + 2)^2$

$$49n^2 + 28n + 4$$

11) $(6x + 6)^2$

$$36x^2 + 72x + 36$$

12) $(n + 1)^2$

$$n^2 + 2n + 1$$

13) $(x + 5)(6x + 5)$

$$6x^2 + 35x + 25$$

14) $(4x + 2)(6x + 8)$

$$24x^2 + 44x + 16$$

15) $(6n + 4)(3n + 2)$

$$18n^2 + 24n + 8$$

16) $(2r - 1)(6r^2 + 6r + 3)$

$$12r^3 + 6r^2 - 3$$

17) $(8x + 1)(6x^2 + 3x + 7)$

$$48x^3 + 30x^2 + 59x + 7$$

18) $(2a - 1)(7a^2 + 2a + 3)$

$$14a^3 - 3a^2 + 4a - 3$$

Evaluate each function.

19) $f(x) = x - 2$

a. $f(-5)$

-7

b. $f(2x + 1)$

$2x - 1$

c. $4f(x)$

$4x - 8$

20) $g(x) = 3x^2 + 1$

a. $g(-3)$

28

b. $g(4x)$

$48x^2 + 1$

c. $-2g(x) + 7$

$-6x^2 + 6$

21) $h(x) = -5x - 2$

a. $h(8)$

-42

b. $h(x - 3)$

$-5x + 13$

c. $5h(x) - 9$

$-25x - 19$

22) $k(x) = 3x + 4$

a. $k(0)$

4

b. $k(2x - 9)$

$6x - 23$

c. $-2k(x) + 12$

$-6x + 4$

Evaluate each of the following functions:

23) $f(x) = x - 2$

$g(x) = 3x^2 + 1$

$h(x) = -5x - 2$

$k(x) = 3x + 4$

24) $(f + g)(x)$

$3x^2 + x - 1$

These are the functions you need to use for the next questions. You do not need to do anything for this problem.

25) $(k - f)(x)$

$$2x + 6$$

26) $(h + g)(x)$

$$3x^2 - 5x - 1$$

27) $(g - h)(x)$

$$3x^2 + 5x + 3$$

28) $(h \cdot f)(x)$

$$-5x^2 + 8x + 4$$

29) $(g \cdot k)(x)$

$$9x^3 + 12x^2 + 3x + 4$$

30) $(k + g)(4)$

31) $(h - g)(3)$

32) $(h + k)(-2)$

33) $(f \cdot g)(10)$

34) $(h \cdot f)(-2)$

Write each expression in exponential form.

35) $\sqrt[3]{10n^2}$

$$10^{\frac{1}{3}} n^{\frac{2}{3}}$$

36) $\sqrt{(7p)^3}$

$$(7p)^{\frac{3}{2}}$$

37) $\sqrt[3]{x}$

$$x^{\frac{1}{3}}$$

38) $\sqrt[3]{4x^5}$

$$4^{\frac{1}{3}} x^{\frac{5}{3}}$$

Write each expression in radical form.

39) $x^{\frac{8}{5}}$

$$\sqrt[5]{x^8}$$

40) $(10x)^{\frac{1}{4}}$

$$\sqrt[4]{10x}$$

41) $7a^{\frac{5}{3}}$

$$7\sqrt[3]{a^5}$$

42) $6x^{\frac{5}{2}}$

$$6\sqrt{x^5}$$

Simplify. Your answer should contain only positive exponents.

43) $(2n)^{-4} \cdot 2n^{-4}$

$$\frac{1}{8n^8}$$

44) $(2a)^{-4} \cdot a^3$

$$\frac{1}{16a}$$

45) $\frac{2x^3 \cdot 2x^{-1}}{4x^{-1}}$

$$x^3$$

46) $\frac{3m^{-3} \cdot 2m^2}{m^{-1}}$

$$6$$

47) $\frac{n^4}{(2n^4)^{-4}}$

$$16n^{20}$$

48) $\frac{2m^4}{(m^4)^3}$

$$\frac{2}{m^8}$$

49) $x^{-2} \cdot 2x^{\frac{-4}{3}} \cdot 3x^3$

$$\frac{6}{x^{\frac{1}{3}}}$$

50) $4p^{-\frac{3}{2}} \cdot 2p^{\frac{1}{2}}$

$$\frac{8}{p}$$

$$51) \left(r^{-\frac{2}{3}}\right)^{-\frac{7}{4}}$$

$$r^{\frac{7}{6}}$$

$$52) \left(n^{-\frac{7}{4}}\right)^{-1}$$

$$n^{\frac{7}{4}}$$

$$53) \frac{2a^{\frac{2}{3}}}{3a^{\frac{1}{2}}}$$

$$\frac{2}{3a^{\frac{1}{6}}}$$

$$54) \frac{4x^{\frac{3}{2}}}{2x^{-\frac{1}{4}}}$$

$$2x^{\frac{7}{4}}$$

$$55) \left(x^{\frac{1}{3}}\right)^{\frac{3}{2}} \cdot \left(x^{\frac{3}{2}}\right)^2$$

$$x^{\frac{7}{2}}$$

$$56) x^{\frac{3}{2}} \cdot (x^0)^{-\frac{3}{4}}$$

$$x^{\frac{3}{2}}$$

$$57) \frac{2p}{2p^{\frac{1}{2}} \cdot 4p^{-1}}$$

$$\frac{p^{\frac{3}{2}}}{4}$$

$$58) \frac{4p}{2p^{\frac{1}{3}} \cdot 3p^{-1}}$$

$$\frac{2p^{\frac{5}{3}}}{3}$$

$$59) \frac{a^{\frac{5}{3}}}{\left(\frac{5}{a^4}\right)^2}$$

$$\frac{1}{a^{\frac{5}{6}}}$$

$$60) \frac{n^{\frac{5}{4}}}{\left(n^{-\frac{2}{3}}\right)^{-\frac{7}{4}}}$$

$$n^{\frac{1}{12}}$$