

CHAPTER 1 FORM A

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Evaluate the expression, given $x = -2$, $y = 3$, and $a = -4$.

1) $(8x + 7y)(-4a)$

A) -80

B) 80

C) 160

D) -928

Simplify. Leave answer with exponent.

2) $(9y)^5 \cdot (9y)^7$

A) $81y^{35}$

B) $81y^{12}$

C) $(9y)^{12}$

D) $9y^{35}$

Find the product.

3) $(x + 6y)(x - 8y)$

A) $x - 2xy - 48y$

B) $x^2 - 2xy - 2y^2$

C) $x^2 - 5xy - 48y^2$

D) $x^2 - 2xy - 48y^2$

Find expressions for the Revenue, Cost, and Profit from selling x thousand items.

Item Price	Fixed Cost	Variable Cost
\$8.00	\$71,174	$3816x$

A) $R = 8000x$; $C = 71,174 + 3816x$; $P = 4184x - 71,174$

B) $R = 16,000x$; $C = 71,174 + 3816x$; $P = 4184x - 71,174$

C) $R = 8000x$; $C = 71,174 + 3816x$; $P = 4284x - 71,174$

D) $R = 8000x$; $C = 142,348 + 3816x$; $P = 4184x - 71,174$

Factor out the greatest common factor.

5) $12m^9 + 21m^6 + 24m^2$

A) No common factor

B) $3m^2(4m^7 + 7m^4 + 8)$

C) $3(4m^9 + 7m^6 + 8m^2)$

D) $m^2(12m^7 + 21m^4 + 24)$

Factor completely.

6) $49x^2 - 36$

A) Prime

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

C) $(7x + 6)^2$

D) $(7x - 6)^2$

7) $t^3 + 729$

A) $(t + 9)(t^2 + 81)$

B) $(t + 9)(t^2 - 9t + 81)$

C) $(t - 729)(t^2 - 1)$

D) $(t - 9)(t^2 + 9t + 81)$

Write the expression in lowest terms.

8) $\frac{y^2 + 12y + 27}{y^2 + 15y + 54}$

A) $\frac{12y + 27}{15y + 54}$

B) $\frac{y + 3}{y + 6}$

C) $\frac{12y + 1}{15y + 2}$

D) $-\frac{y^2 + 12y + 27}{y^2 + 15y + 54}$

Perform the indicated operations. Give the answer in lowest terms.

9) $\frac{8a + 9b}{2} - \frac{8a - 9b}{2}$

A) 0

B) 8a

C) 81b

D) 9b

Simplify the complex fraction.

10) $\frac{\frac{4}{3r - 1} - 4}{\frac{4}{3r - 1} + 4}$

A) $\frac{2 - r}{r}$

B) $\frac{2 + 3r}{3r}$

C) $\frac{2 - 3r}{3r}$

D) $\frac{3r}{2 - 3r}$

Simplify the expression. Write answer with positive exponents. Variables are positive real numbers.

11) $\left[\frac{x^4}{y^{-8}}\right]^{1/4}$

A) $xy^{1/2}$

B) xy^2

C) $\frac{x}{y^2}$

D) xy

Write the rational exponent expression as an equivalent radical expression.

12) $(3x)^{-1/3}$

A) $\frac{1}{\sqrt[3]{-3x}}$

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

C) $\frac{1}{\sqrt[3]{3x}}$

D) $\frac{-3}{\sqrt[3]{x}}$

Solve the problem.

13) A manufacturer's cost is given by $C = 400\sqrt[3]{n} + 200$, where C is the cost and n is the number of parts produced. Find the cost when 512 parts are produced.

A) \$3400

B) \$50

C) \$1800

D) \$9252

Solve the equation.

14) $15b + 6 = 11b$

A) $-\frac{2}{3}$

B) $\frac{3}{13}$

C) $-\frac{3}{2}$

D) $\frac{3}{2}$

Solve the formula for the specified variable.

15) $I = \frac{nE}{nr + R}$ for n

A) $n = IR(Ir - E)$

B) $n = \frac{IR}{Ir + E}$

C) $n = \frac{-IR}{Ir - E}$

D) $n = \frac{-R}{Ir - E}$

Solve the problem.

16) A square plywood platform has a perimeter which is 6 times the length of a side decreased by 10. Find the length of a side.

A) 5

B) 2

C) 1

D) 7

Use factoring to solve the equation.

17) $(x + 3)(x - 19) = 0$

A) 19, 3

B) 3, -19

C) -3, 19

D) -19, 3

Use the quadratic formula to solve the equation. Give both exact and approximate answers.

18) $5m^2 + 12m + 6 = 0$

A) $\frac{-12 \pm \sqrt{6}}{5}$; -1.91, -2.89

B) $\frac{-6 \pm \sqrt{6}}{10}$; -0.355, -0.845

C) $\frac{-6 \pm \sqrt{66}}{5}$; 0.425, -2.825

D) $\frac{-6 \pm \sqrt{6}}{5}$; -0.71, -1.69

Use the discriminant to determine the number of real solutions of the equation.

19) $16x^2 + 8x + 1 = 0$

A) No real solutions

B) 1

C) 2

Solve the problem.

20) Two cars leave an intersection. One car travels north; the other east. When the car traveling north had gone 9 mi, the distance between the cars was 3 mi more than the distance traveled by the car heading east. How far had the eastbound car traveled?

A) 18 mi

B) 12 mi

C) 15 mi

D) 9 mi

Answer Key

Testname: CHAPTER 1 FORM A

- 1) B
- 2) C
- 3) D
- 4) A
- 5) B
- 6) B
- 7) B
- 8) B
- 9) D
- 10) C
- 11) B
- 12) C
- 13) A
- 14) C
- 15) C
- 16) A
- 17) C
- 18) D
- 19) B
- 20) B

CHAPTER 1 FORM B

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Evaluate the expression using order of operations.

1) $\frac{(-2) \cdot (3 + 4) + (-2) \cdot 5}{(-2) \cdot (8 - 1)}$

A) $\frac{12}{7}$

B) $\frac{7}{12}$

C) $\frac{25}{14}$

D) $\frac{30}{7}$

Add or subtract as indicated.

2) $(4n^5 - 5n^3 - 3) + (5n^5 + 3n^3 - 8)$

A) $2n^5 + 7n^3 - 13$

B) $9 - 2n^5 - 11n^3$

C) $9n^5 - 2n^3 - 11$

D) $-4n^8$

Find the product.

3) $(9p - 1)(81p^2 + 9p + 1)$

A) $729p^3 + 1$

B) $729p^3 + 90p^2 - 1$

C) $81p^3 - 1$

D) $729p^3 - 1$

Solve the problem.

- 4) The polynomial $0.0057x^3 + 0.0032x^2 + 0.164x + 1.45$ gives the approximate total earnings of a company, in millions of dollars, where $x = 0$ corresponds to 1996, $x = 1$ corresponds to 1997, and so on. This model is valid for the years from 1996 to 2000. Determine the earnings for 2000.

A) \$2.42 million

B) \$3.06 million

C) \$2.12 million

D) \$2.52 million

Factor completely.

5) $x^2 - x - 48$

A) $(x + 6)(x - 8)$

B) $(x - 48)(x + 1)$

C) $(x - 6)(x + 8)$

D) Prime

6) $u^2 - 2uv - 48v^2$

A) $(u + 6v)(u - 8v)$

B) $(u - 6v)(u + 8v)$

C) Prime

D) $(u - 6v)(u + v)$

7) $x^2 - 8xy + 16y^2$

A) $(x + 4y)^2$

B) Prime

C) $(x - 4y)^2$

D) $(x - 4y)(x + 4y)$

Perform the indicated operation. Give the answer in lowest terms.

$$8) \frac{4p-4}{p} \cdot \frac{2p^2}{7p-7}$$

$$A) \frac{8p^3 - 8p^2}{7p^2 - 7p}$$

$$B) \frac{7}{8p}$$

$$C) \frac{28p^2 + 56p + 28}{2p^3}$$

$$D) \frac{8p}{7}$$

Perform the indicated operations. Give the answer in lowest terms.

$$9) \frac{4x}{3(2x+1)} - \frac{1}{3x(2x+1)} + \frac{3}{x}$$

$$A) \frac{2(x+4)}{6x^2 + 3x}$$

$$B) \frac{2(x+4)}{3x}$$

$$C) \frac{4x^2 + 18x + 8}{6x^2 + 3x}$$

$$D) \frac{4x^2 + 18x + 8}{3x}$$

Simplify the complex fraction.

$$10) \frac{9 + \frac{3}{x}}{\frac{x}{4} + \frac{1}{12}}$$

$$A) 36$$

$$B) \frac{x}{36}$$

$$C) 1$$

$$D) \frac{36}{x}$$

Simplify the expression. Write answer with positive exponents.

$$11) \frac{6^{-3}}{6^8}$$

$$A) \frac{1}{6^{-11}}$$

$$B) \frac{1}{6^5}$$

$$C) \frac{1}{6^8}$$

$$D) \frac{1}{6^{11}}$$

Simplify the expression.

$$12) \sqrt[4]{8} \cdot \sqrt[4]{12}$$

$$A) \sqrt[4]{96}$$

$$B) 2\sqrt[4]{2} + 2\sqrt[4]{3}$$

$$C) 2\sqrt[4]{6}$$

$$D) 4\sqrt{2}$$

Rationalize the denominator. Assume all variables represent positive real numbers.

13) $\frac{\sqrt{5}}{\sqrt{7}+3}$

A) $\frac{\sqrt{35}+3\sqrt{5}}{-2}$

B) $\frac{3\sqrt{35}+75}{21}$

C) $\frac{\sqrt{35}-3\sqrt{5}}{10}$

D) $\frac{\sqrt{35}-3\sqrt{5}}{-2}$

Solve the equation.

14) $\frac{2y+3}{y} = \frac{3}{2}$

A) 0

B) $\sqrt{2}$

C) -6

D) 6

Solve the equation for x.

15) $ax - b = 3(x + a)$

A) $x = \frac{3a - b}{a - 3}$

B) $x = \frac{3a + b}{a + 3}$

C) $x = \frac{3a + b}{a - 3}$

D) $x = \frac{a + b}{a - 3}$

Solve the problem.

16) Janet drove 335 kilometers and the trip took 5 hours. How fast was Janet traveling?

A) 87 kilometers per hour

B) 57 kilometers per hour

C) 77 kilometers per hour

D) 67 kilometers per hour

Use factoring to solve the equation.

17) $15m^2 - 6m = 0$

A) 0

B) $\frac{2}{5}, 0$

C) $\frac{2}{5}, -\frac{2}{5}$

D) $-\frac{2}{5}, 0$

Use the quadratic formula to solve the equation. Give both exact and approximate answers.

18) $6n^2 = -8n - 1$

A) $\frac{-4 \pm \sqrt{10}}{6}; -0.14, -1.194$

B) $\frac{-8 \pm \sqrt{10}}{6}; -0.806, -1.86$

C) $\frac{-4 \pm \sqrt{10}}{12}; -0.07, -0.597$

D) $\frac{-4 \pm \sqrt{22}}{6}; 0.115, -1.448$

Find approximate solutions of the equation.

19) $3x^2 - 4.7x + 0.4 = 0$

A) 1.48 or -1.48

B) 1.48 or 0.09

C) -0.09 or -1.48

D) -0.09 or 0.09

Solve the equation for the indicated variable.

20) $A = \pi r^2$ for r

A) $r = \pm \sqrt{\frac{\pi}{A}}$

B) $r = \frac{A}{\pi}$

C) $r = A\pi$

D) $r = \pm \sqrt{\frac{A}{\pi}}$

Answer Key

Testname: CHAPTER 1 FORM B

- 1) A
- 2) C
- 3) D
- 4) D
- 5) D
- 6) A
- 7) C
- 8) D
- 9) B
- 10) D
- 11) D
- 12) C
- 13) D
- 14) C
- 15) C
- 16) D
- 17) B
- 18) A
- 19) B
- 20) D

CHAPTER 1 FORM C

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Name the property illustrated.

1) $(1 + 3) + 7 = (3 + 1) + 7$

A) Identity property

C) Commutative property

B) Associative property

D) Distributive property

Simplify. Leave answer with exponent.

2) $4^2 \cdot 4^5$

A) 16^7

B) 4^7

C) 16^{10}

D) 4^{10}

Find the product.

3) $(9y - 8)(81y^2 + 72y + 64)$

A) $729y^3 + 576y^2 - 512$

C) $729y^3 + 512$

B) $81y^3 + 512$

D) $729y^3 - 512$

Solve the problem.

4) If an object is dropped, the distance it falls is given by $d = \frac{1}{2}gt^2$, where g is about 32 ft/sec².

Find the distance an object would fall in 10 seconds.

A) 3200 ft

B) 160 ft

C) 1600 ft

D) 800 ft

Factor out the greatest common factor.

5) $36x^9y^9 - 27x^7y^7 + 90x^4y^3$

A) $9x^4y^3(4x^5y^6 - 3x^3y^4 + 10)$

C) $9(4x^9y^9 - 3x^7y^7 + 10x^4y^3)$

B) No common factor

D) $9x^4(4x^5y^9 - 3x^3y^7 + 10y^3)$

Factor completely.

6) $x^2 + 3xy - 154y^2$

A) $(x + 14y)(x - 11y)$

C) $(x - 14y)(x + y)$

B) Prime

D) $(x - 14y)(x + 11y)$

7) $1000y^3 - 343$

A) $(1000y - 7)(y^2 + 70y + 49)$

C) $(10y - 7)(100y^2 + 49)$

B) $(10y - 7)(100y^2 + 70y + 49)$

D) $(10y + 7)(100y^2 - 70y + 49)$

Perform the indicated operation. Give the answer in lowest terms.

8) $\frac{k^2 + 5k + 6}{k^2 + 9k + 18} \cdot \frac{k^2 + 15k + 54}{k^2 + 11k + 18}$

- A) 1 B) $\frac{k+2}{k+6}$ C) $\frac{k+6}{k+9}$ D) $\frac{1}{k+9}$

Perform the indicated operations. Give the answer in lowest terms.

9) $\frac{9}{z^2} - \frac{6}{z}$

- A) $\frac{3(3z+2)}{z^2}$ B) $\frac{3(2z-3)}{z}$ C) $\frac{3(3+2z)}{z^2}$ D) $\frac{3(3-2z)}{z^2}$

Simplify the complex fraction.

10) $\frac{4 + \frac{2}{s}}{\frac{s}{3} + \frac{1}{6}}$

- A) 12 B) $\frac{12}{s}$ C) 1 D) $\frac{s}{12}$

Simplify the expression. Write answer with positive exponents. Variables are positive real numbers.

11) $(16k^4m^{-8})^{1/4}$

- A) $\frac{4k}{m^2}$ B) $\frac{2k}{m^2}$ C) $2km^2$ D) $4km^2$

Simplify the expression.

12) $\sqrt[3]{27} \cdot \sqrt[3]{125}$

- A) 15 B) -15 C) -2 D) 8

Solve the problem.

13) The distance d in miles that can be seen on the surface of the ocean is given by $d = 1.2\sqrt{h}$, where h is the height in feet above the surface. How high (to the nearest foot) would a platform have to be to see a distance of 10.5 miles?

- A) 110 ft B) 132 ft C) 88 ft D) 77 ft

Solve the equation.

14) $3(2z - 4) = 5(z + 3)$

- A) 3 B) 27 C) -3 D) 6

$$15) \left| \frac{2x+1}{x-1} \right| = 6$$

A) -4, -8

B) 7, 5

C) $\frac{7}{8}, \frac{5}{4}$

D) $\frac{7}{4}, \frac{5}{8}$

Solve the problem.

16) If Gloria received a 6 percent raise and is now making \$26,500 a year, what was her salary before the raise?

A) \$26,000

B) \$25,000

C) \$25,500

D) \$24,500

Solve by the square-root property.

17) $(x+3)^2 = 20$

A) $2\sqrt{5} - 3, 2\sqrt{5} + 3$

B) $-3 + 2\sqrt{5}, -3 - 2\sqrt{5}$

C) $2\sqrt{5}, -2\sqrt{5}$

D) $-3 + 2\sqrt{10}, -3 - 2\sqrt{10}$

Use the quadratic formula to solve the equation. Give both exact and approximate answers.

18) $6x^2 + 10x = -1$

A) $\frac{-5 \pm \sqrt{19}}{6}; -0.107, -1.56$

B) $\frac{-5 \pm \sqrt{19}}{12}; -0.053, -0.78$

C) $\frac{-5 \pm \sqrt{31}}{6}; 0.095, -1.761$

D) $\frac{-10 \pm \sqrt{19}}{6}; -0.94, -2.393$

Solve the problem.

19) A rectangular garden has dimensions of 25 feet by 11 feet. A gravel path of equal width is to be built around the garden. How wide can the path be if there is enough gravel for 252 square feet?

A) 3 ft

B) 5.5 ft

C) 4 ft

D) 5 ft

Solve the equation for the indicated variable.

20) $E = mc^2$ for c

A) $c = \pm\sqrt{Em}$

B) $c = Em$

C) $c = \frac{E}{m}$

D) $c = \pm\sqrt{\frac{E}{m}}$

Answer Key

Testname: CHAPTER 1 FORM C

- 1) C
- 2) B
- 3) D
- 4) C
- 5) A
- 6) A
- 7) B
- 8) A
- 9) D
- 10) B
- 11) B
- 12) A
- 13) D
- 14) B
- 15) D
- 16) B
- 17) B
- 18) A
- 19) A
- 20) D

CHAPTER 1 FORM D

Name _____

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

Mark the statement as true or false.

- 1) Every integer is an irrational number.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

- 2) Kafka Inc. imports hard drives and sells them on the internet. The profit is given by the equation $P = 137n - 7250$, where n is the number of hard drives sold. How many hard drives must be sold for the company to break even? Round your answer to the units place, in other words, to the nearest number of hard drives.

- A) 51 hard drives
B) 53 hard drives
C) 57 hard drives
D) 73 hard drives

Use inequality symbols to rewrite the statement. Let x represent the unknown.

- 3) The new software product will cost between \$275 and \$350 per unit.

- A) $x \leq 350$
B) $\$275 \leq x \leq \350
C) $\$275 < x < \350
D) $x > \$275, x < \350

Simplify. Leave answer with exponent.

4) $(4y)^3 \cdot (4y)^5$

- A) $4y^{15}$
B) $16y^8$
C) $(4y)^8$
D) $16y^{15}$

Find the product.

5) $(x + 8y)(-4x + 3y)$

- A) $-4x^2 - 29xy - 24y^2$
B) $x^2 - 29xy + 24y^2$
C) $-4x^2 - 29xy + 24y^2$
D) $x^2 - 29xy - 24y^2$

Solve the problem.

- 6) The distance, s , in feet, traveled by a body falling freely from rest in t seconds is approximated by the function $s(t) = 16t^2$. An experimenter on a ladder releases a marble from rest. The marble takes 3 seconds to fall to the ground. How high was the marble when it was released?

- A) 48 feet
B) 9 feet
C) 144 feet
D) 2304 feet

Factor out the greatest common factor.

7) $48x^7y^8 - 48x^3y^5 + 120x^5y^3$

- A) $24x^3y^3(2x^4y^5 - 2y^2 + 5x^2)$
B) $24(2x^7y^8 - 2x^3y^5 + 5x^5y^3)$
C) $24x^3(2x^4y^8 - 2y^5 + 5x^2y^3)$
D) No common factor

Factor completely.

8) $5x^2 - 15xy - 20y^2$

A) $5(x + y)(x - 4y)$

C) Cannot be factored

B) $5(x - y)(x + 4y)$

D) $(5x - 5y)(x + 4y)$

9) $125a^3 - 8b^3$

A) $(5a - 2b)(25a^2 + 10ab + 4b^2)$

C) $(125a - 2b)(a^2 + 10ab + 4b^2)$

B) $(5a + 2b^2)(25a^2 - 10ab + 4b^2)$

D) $(5a - 2b)(25a^2 + 4b^2)$

Write the expression in lowest terms.

10) $\frac{3x + 2}{15x^2 + 16x + 4}$

A) $\frac{3x + 2}{15x^2 + 16x + 4}$

C) $\frac{3x}{5x + 2}$

B) $\frac{1}{5x + 2}$

D) $\frac{3x + 5}{5x + 16}$

Perform the indicated operations. Give the answer in lowest terms.

11) $\frac{4}{y^2 - 3y + 2} + \frac{7}{y^2 - 1}$

A) $\frac{11y - 10}{(y - 1)(y - 2)}$

C) $\frac{10y - 11}{(y - 1)(y + 1)(y - 2)}$

B) $\frac{11y - 10}{(y - 1)(y + 1)(y - 2)}$

D) $\frac{56y - 10}{(y - 1)(y + 1)(y - 2)}$

Simplify the complex fraction.

12) $\frac{\frac{x}{x + 1}}{\frac{2}{x^2 - 1}}$

A) $\frac{x(x - 1)}{2}$

B) $\frac{2(x - 1)}{x}$

C) $\frac{x(x + 1)}{2}$

D) $\frac{2(x + 1)}{x}$

Evaluate the expression. Write answer without exponents.

13) $\left(\frac{4}{9}\right)^{1/2}$

A) $\frac{1}{4}$

B) $\frac{2}{3}$

C) $\frac{1}{3}$

D) $\frac{2}{4}$

Write the rational exponent expression as an equivalent radical expression.

14) $5x^{-1/5}$

A) $\frac{-5}{\sqrt[5]{x}}$

B) $\frac{1}{\sqrt[5]{-5x}}$

C) $\frac{1}{\sqrt[5]{5x}}$

D) $\frac{5}{\sqrt[5]{x}}$

Solve the problem.

15) The time T in seconds for a pendulum of length L feet to make one swing is given by $T = 2\pi$

$\sqrt{\frac{L}{34}}$. How long is a pendulum (to nearest hundredth) if it makes one swing in 2.1 seconds?

Use 3.14 for π .

A) 3.8 ft

B) 37.49 ft

C) 149.94 ft

D) 23.88 ft

Solve the equation.

16) $\frac{x}{2x+2} - \frac{-2x}{4x+4} - \frac{2x-3}{x+1} = 0$

A) 3

B) $\frac{3}{2}$

C) $-\frac{12}{5}$

D) -3

Use a calculator to solve the equation. Round to the nearest hundredth.

17) $-0.83x - 4.88(4.2 + 1.9x) = -1.01x + 4.2423$

A) -2.72

B) -2.23

C) 1.46

D) 1.79

Solve the problem.

18) Mardi received an inheritance of \$60,000. She invested part at 12% and deposited the remainder in tax-free bonds at 8%. Her total annual income from the investments was \$6800. Find the amount invested at 12%.

A) \$25,000

B) \$53,200

C) \$50,000

D) \$49,000

Solve by the square-root property.

19) $(x + 16)^2 - 7 = 0$

A) $-4 \pm \sqrt{7}$

B) $-16 \pm \sqrt{7}$

C) -9, 23

D) $16 \pm \sqrt{7}$

Use the quadratic formula to solve the equation. Give both exact and approximate answers.

20) $2m^2 + 10m + 4 = 0$

A) $\frac{-10 \pm \sqrt{17}}{2}$; -2.938, -7.062

B) $\frac{-5 \pm \sqrt{17}}{4}$; -0.219, -2.281

C) $\frac{-5 \pm \sqrt{17}}{2}$; -0.438, -4.562

D) $\frac{-5 \pm \sqrt{33}}{2}$; 0.372, -5.372

Answer Key

Testname: CHAPTER 1 FORM D

- 1) FALSE
- 2) B
- 3) C
- 4) C
- 5) C
- 6) C
- 7) A
- 8) A
- 9) A
- 10) B
- 11) B
- 12) A
- 13) B
- 14) D
- 15) A
- 16) A
- 17) A
- 18) C
- 19) B
- 20) C