

# CHAPTER 1 FORM A

Name \_\_\_\_\_

**Label the statement true or false.**

1) The absolute value of any number is positive.

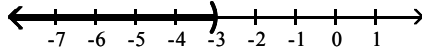
A) True

B) False

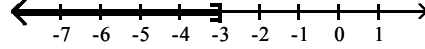
**Graph the interval on a number line.**

2)  $(-\infty, -3)$

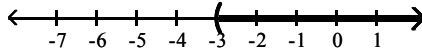
A)



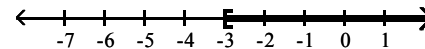
B)



C)



D)



**Solve the problem.**

3) The two charts show the weight gain of some people and the weight loss of other people.

<u>Weight Gain (grams)</u>		<u>Weight Loss (grams)</u>	
Aakeem	3,051	David	-2,958
Bridgett	4,208	Emil	-2,177
Carlos	1,695	Fabricio	-857

What is the difference between the weight gain of Bridgett and the weight loss of Fabricio?

A) -5,065 grams

B) 3,351 grams

C) -3,351 grams

D) 5,065 grams

**Use a calculator to approximate the number.**

4)  $(-5.3)^2$

A) 28.1

B) -28.1

C) -10.6

D) 10.6

**Find expressions for the revenue (R), cost (C), and profit (P) from selling x thousand items.**

5) Item Price	Fixed Cost	Variable Cost
\$5.00	\$41,609	4,862x

A)  $R = 10,000x$ ;  $C = 41,609 + 4,862x$ ;  $P = 138x - 41,609$

B)  $R = 5,000x$ ;  $C = 41,609 + 4,862x$ ;  $P = 238x - 41,609$

C)  $R = 5,000x$ ;  $C = 41,609 + 4,862x$ ;  $P = 138x - 41,609$

D)  $R = 5,000x$ ;  $C = 83,218 + 4,862x$ ;  $P = 138x - 41,609$

**Factor out the greatest common factor in the given polynomial.**

6)  $72m^9 + 56m^6 + 32m^3$

A)  $m^3(72m^6 + 56m^3 + 32)$

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

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

D) No common factor

**Factor the polynomial completely. Factor out the greatest common factor as necessary.**

7)  $8x^2 - 28x - 16$

A)  $4(2x + 1)(x - 4)$

B)  $4(2x - 1)(x + 4)$

C)  $(8x - 4)(x + 4)$

D)  $(2x - 1)(4x + 16)$

**Perform the indicated operation. Write the answer in lowest terms.**

8)  $\frac{k^2 + 16k + 63}{k^2 + 11k + 28} \cdot \frac{k^2 + 8k + 16}{k^2 + 13k + 36}$

A)  $\frac{k + 4}{k + 4}$

B)  $\frac{k + 9}{k + 4}$

C) 1

D)  $\frac{1}{k + 4}$

**Simplify the complex fraction.**

9)  $\frac{4 + \frac{2}{x}}{\frac{x}{4} + \frac{1}{8}}$

A) 1

B) 16

C)  $\frac{16}{x}$

D)  $\frac{x}{16}$

**Simplify the expression. Write answer with positive exponents.**

10)  $3^{-2} \cdot 3^9$

A)  $9^7$

B)  $9^{18}$

C)  $3^{-18}$

D)  $3^7$

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

$$11) \left( \frac{x^{-7/6}}{s^{-2/3}} \right)^4 (x^{-1/6} s^{-1/7})^{-3}$$

A)  $\frac{s^{65/21}}{x^{25/6}}$

B)  $\frac{x^{25/6}}{s^{65/21}}$

C)  $\frac{s^{47/21}}{x^{31/6}}$

D)  $\frac{x^{31/6}}{s^{47/21}}$

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

$$12) \frac{7 - \sqrt{10}}{7 + \sqrt{10}}$$

A)  $\frac{59 + 14\sqrt{10}}{39}$

B)  $\frac{39 - 14\sqrt{10}}{59}$

C)  $\frac{59 - 14\sqrt{10}}{39}$

D) 1

**Solve the equation.**

$$13) \frac{b}{11} - 4 = -3$$

A) 13

B) 11

C) -13

D) -11

$$14) |4s - 1| = |s - 2|$$

A)  $\frac{1}{3}, -\frac{3}{5}$

B)  $-\frac{1}{3}, \frac{3}{5}$

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

D) No solution

**Solve the problem.**

15) In a chemistry class, 3 liters of a 4% silver iodide solution must be mixed with a 10% solution to get a 6% solution. How many liters of the 10% solution are needed?

A) 3.0 liters

B) 1.5 liters

C) 2.5 liters

D) 0.5 liters

**Use factoring to solve the equation.**

$$16) 22n^2 + 14n = 0$$

A)  $-\frac{7}{11}$

B)  $-\frac{7}{11}, 0$

C) 0

D)  $-\frac{7}{11}, 14$

**Use the quadratic formula to solve the equation.**

17)  $3x^2 + 12x = -7$

A)  $\frac{-6 \pm \sqrt{15}}{6}$

B)  $\frac{-6 \pm \sqrt{57}}{3}$

C)  $\frac{-6 \pm \sqrt{15}}{3}$

D)  $\frac{-12 \pm \sqrt{15}}{3}$

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

18)  $s^2 + 3s - 4 = 0$

A) 1

B) 2

C) No real solutions

**Find approximate solutions of the equation.**

19)  $x^2 - 0.6x + 0.09 = 29.16$

A) 5.7, -5.1

B) 5.7, 5.1

C) 5.7

D) 29.46, -28.86

**Solve the problem.**

20) The position of an object moving in a straight line is given by  $s = t^2 + 2t$ , where  $s$  is the distance travelled (in meters) and  $t$  is the time the object has been in motion (in seconds). How long will it take the object to move 63 meters?

A) 7 sec

B) 2 sec

C) -9 sec

D) 9 sec

Answer Key  
Testname: CHAPTER 1 FORM A

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

# CHAPTER 1 FORM B

Name \_\_\_\_\_

Identify the property that is illustrated.

1)  $7 + 1 = 1 + 7$

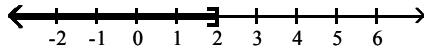
- A) Distributive property
- C) Identity property

- B) Associative property
- D) Commutative property

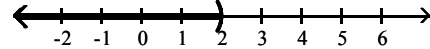
Graph the interval on a number line.

2)  $[2, \infty)$

A)



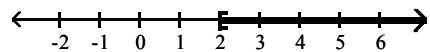
B)



C)



D)





Factor the polynomial completely. Factor out the greatest common factor as necessary.

7)  $x^3 - 343$

A)  $(x + 343)(x^2 - 1)$

B)  $(x - 7)(x^2 + 7x + 49)$

C)  $(x + 7)(x^2 - 7x + 49)$

D)  $(x - 7)(x^2 + 49)$

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

8)  $\frac{z^2 + 12z + 36}{z^2 + 15z + 54} \div \frac{z^2 + 6z}{z^2 + 7z - 18}$

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

B)  $\frac{z}{z^2 + 15z + 54}$

C)  $z - 2$

D)  $\frac{z - 2}{z^2 + 9z}$

Simplify the complex fraction.

9)  $\frac{\frac{-3}{x+5} + \frac{-2}{x+1}}{\frac{1}{x-1} - \frac{3}{x+5}}$

A)  $\frac{-3x + 18}{-1x + 5}$

B)  $\frac{-5x^2 - 8x + 13}{-2x^2 + 6x + 8}$

C)  $\frac{-5x^2 - 8x + 13}{4x^2 + 14x + 1}$

D)  $\frac{-5x^2 + 12x - 7}{2x^2 + 7x + 8}$

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

10)  $\frac{y^{8/10}}{y^{3/10}}$

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

B)  $y^{1/2}$

C)  $y^{8/10}$

D)  $y$

Write the rational exponent expression as an equivalent radical expression.

11)  $(7x)^{-1/7}$

A)  $7 \sqrt[7]{x}$

B)  $\frac{1}{\sqrt[7]{-7x}}$

C)  $\frac{1}{\sqrt[7]{7x}}$

D)  $\frac{-7}{\sqrt[7]{x}}$



**Solve the problem.**

12) 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. How many parts are produced when the cost is \$3,400?

- A) 64                      B) 3,200                      C) 4,096                      D) 512

**Solve the equation.**

13)  $\frac{4}{x-2} = 1 + \frac{6}{x+2}$

- A) -4, 6                      B) -6, 6                      C) 4, -6                      D)  $\emptyset$

14)  $\left| \frac{3}{y-6} \right| = 4$

- A) -7, 7                      B)  $\frac{27}{4}, \frac{21}{4}$                       C) 10, 2                      D) 27, 21

**Solve the problem.**

15) A sign is in the shape of an isosceles triangle. One side is 12 inches shorter than each of the equal sides. Find the length of one of the equal sides if the perimeter is 57 inches.

- A) 26 in.                      B) 23 in.                      C) 11 in.                      D) 19 in.

**Use factoring to solve the equation.**

16)  $9k^2 - 16 = 0$

- A) 4, 0                      B)  $\frac{3}{4}, -\frac{3}{4}$                       C)  $\frac{4}{3}, -\frac{4}{3}$                       D)  $\frac{3}{4}, 0$

**Use the quadratic formula to solve the equation.**

17)  $4n^2 = -12n - 3$

- A)  $\frac{-3 \pm \sqrt{6}}{8}$                       B)  $\frac{-3 \pm \sqrt{6}}{2}$                       C)  $\frac{-3 \pm \sqrt{3}}{2}$                       D)  $\frac{-12 \pm \sqrt{6}}{2}$

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

18)  $t^2 + 6t + 9 = 0$

- A) 1                                      B) 2                                      C) No real solutions

**Find approximate solutions of the equation.**

19)  $2z^2 + 4z = 1$

A) 2.22, -0.22

B) 0.22, -2.22

C) -0.29, -1.71

D) 0.44, -4.44

**Solve the equation for the indicated variable.**

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

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

B)  $r = A\pi$

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

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

Answer Key  
Testname: CHAPTER 1 FORM B

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

# CHAPTER 1 FORM C

Name \_\_\_\_\_

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

1)  $-3(x + 6) - 8a^2$

A) 20

B) 116

C) -140

D) -152

**Solve the problem.**

2) Xenia Computers Inc. sells laptop computers. The profit is given by the equation  $P = 150n + 525$ , where  $n$  is the number of laptops sold. Calculate the profit corresponding to the sale of 624 laptops.

A) \$93,335

B) \$93,075

C) \$93,600

D) \$94,125

**Evaluate the expression.**

3)  $-|-2| - |21|$

A) 23

B) -23

C) -19

D) 19

**Add or subtract as indicated.**

4)  $(3n^5 - 18n^2 - 9n) - (8n^5 - 5n^2 + 8n)$

A)  $-5n^5 - 10n^2 - 1n$

B)  $-5n^5 - 13n^2 - 17n$

C)  $-5n^5 - 13n^2 - 1n$

D)  $-35n^8$

**Solve the problem.**

5) If an object is dropped, the distance it falls (in meters) is approximately  $D = 9.8t^2$ , where the time  $t$  is measured in seconds. Approximate the distance an object would fall in 8 seconds.

A) 794 m

B) 157 m

C) 88 m

D) 627 m

**Factor the polynomial completely. Factor out the greatest common factor as necessary.**

6)  $3x^2 - 3x + 42$

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

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

C)  $(3x + 6)(x - 3)$

D) Cannot be factored.

Write the expression in lowest terms.

7)  $\frac{15k^3}{5k}$

A)  $10k^2$

B)  $3k$

C)  $3k^2$

D)  $10$

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

8)  $\frac{x}{x^2 - 16} - \frac{8}{x^2 + 5x + 4}$

A)  $\frac{x^2 + 7x + 32}{(x - 4)(x + 4)(x + 1)}$

B)  $\frac{x^2 - 7x + 32}{(x - 4)(x + 4)}$

C)  $\frac{x^2 - 7x + 32}{(x - 4)(x + 4)(x + 1)}$

D)  $\frac{x^2 - 7}{(x - 4)(x + 4)(x + 1)}$

Evaluate the expression. Write answer without exponents.

9)  $(-8)^0$

A)  $0$

B)  $-1$

C)  $-8$

D)  $1$

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

10)  $(b^3)^{2/5}$

A)  $b^2$

B)  $b^{1/3}$

C)  $b^{5/3}$

D)  $b^{2/9}$

Simplify the expression.

11)  $(\sqrt{5} + 2)(\sqrt{5} - 8)$

A)  $-14 + 6\sqrt{5}$

B)  $9$

C)  $-11 - 6\sqrt{5}$

D)  $-11$

Solve the problem.

12) The length a spring is stretched from its natural length with  $W$  foot-pounds of work, is given by

$$L = \sqrt{\frac{2W}{k}}$$

where  $k$  is a constant for the given spring. If a certain spring has a constant of  $k = 38.9$ , and the spring is to be stretched 3.1 feet from its natural length, how much work will be necessary?

A) 373.8 foot-pounds

B) 60.3 foot-pounds

C) 186.9 foot-pounds

D) 34.2 foot-pounds

**Solve the equation for x.**

13)  $a^2x - 5x = 2a^2$

A)  $x = -\frac{2}{5}$

B)  $x = \frac{2a^2}{a^2 - 5}$

C)  $x = \frac{2a^2}{a^2 + 5}$

D)  $x = \frac{2}{5}$

**Solve the problem.**

14) Alicia and Marissa are riding bicycles, starting at the same location and heading in the same direction. Alicia is traveling at the speed of 9 miles per hour, and Marissa is traveling at the speed of 4 miles per hour. In 3 hours what is the distance between them?

A) 24 miles

B) 15 miles

C) 16 miles

D) 12 miles

**Use factoring to solve the equation.**

15)  $x^2 - 10x + 25 = 9$

A) 2, -8

B) 14

C) 3, -3

D) 8, 2

**Solve by the square-root property.**

16)  $(r + 5)^2 = 17$

A)  $\sqrt{17}, \sqrt{17}$

B) 12

C)  $-5 + \sqrt{17}, -5 - \sqrt{17}$

D)  $5 + \sqrt{17}, 5 - \sqrt{17}$

**Use the quadratic formula to solve the equation.**

17)  $5x^2 + 12x = -2$

A)  $\frac{-6 \pm \sqrt{26}}{5}$

B)  $\frac{-12 \pm \sqrt{26}}{5}$

C)  $\frac{-6 \pm \sqrt{26}}{10}$

D)  $\frac{-6 \pm \sqrt{46}}{5}$

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

18)  $w^2 + 3w + 4 = 0$

A) 1

B) 2

C) No real solutions

**Solve the problem.**

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

A) 9 km

B) 18 km

C) 15 km

D) 12 km

**Solve the equation for the indicated variable.**

20)  $v^2 = 2as$  for  $v$

A)  $v = \frac{2a}{s}$

B)  $v = \pm \sqrt{\frac{2a}{s}}$

C)  $v = \pm \sqrt{2as}$

D)  $v = 2a\sqrt{s}$

Answer Key  
Testname: CHAPTER 1 FORM C

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



# CHAPTER 1 FORM D

Name \_\_\_\_\_

**Evaluate the expression using the order of operations.**

1)  $-20 + (5 \cdot 2 + 40) \div 5$

A) -2

B) 10

C) -10

D) 6

**Solve the problem.**

2) Orange Inc. sells oKay smart phones. The profit is given by the equation  $P = 175n + 525$ , where  $n$  is the number of smart phones sold. Calculate the profit corresponding to the sale of 821 smart phones.

A) \$144,200

B) \$143,675

C) \$143,410

D) \$143,150

**Fill in the blank with either =, <, or > so that the resulting statement is true.**

3)  $-|5| \_ -|-5|$

A) =

B) <

C) >

D) None

**Find the given product.**

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

A)  $-16x^3 + 32x^2 + 16x$

B)  $-16x^3 - 4x^2 + 16x$

C)  $-16x^3 + 48x^2$

D)  $-16x^3 + 32x^2 - 2x$

**Solve the problem.**

5) Total profit is defined as total revenue minus total cost.  $R(x)$  and  $C(x)$  are the revenue and cost from the sale of  $x$  televisions. If  $R(x) = 250x - 0.7x^2$  and  $C(x) = 4,000 + 0.5x^2$ , find the profit from the sale of 100 televisions.

A) \$19,000

B) \$9,000

C) \$27,000

D) \$17,000

**Factor the polynomial completely. Factor out the greatest common factor as necessary.**

6)  $25x^2 + 80x + 64$

A)  $(5x + 8)(5x - 8)$

B)  $(5x + 8)^2$

C)  $(5x - 8)^2$

D) Cannot be factored.

Write the expression in lowest terms.

$$7) \frac{y^2 + 8y + 16}{y^2 + 10y + 24}$$

$$A) \frac{8y + 2}{10y + 3}$$

$$B) -\frac{y^2 + 8y + 16}{y^2 + 10y + 24}$$

$$C) \frac{y + 4}{y + 6}$$

$$D) \frac{8y + 16}{10y + 24}$$

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

$$8) \frac{x}{3(x+2)} - \frac{4}{3x(x+2)} - \frac{11}{x}$$

$$A) \frac{x - 35}{3x}$$

$$B) \frac{x - 35}{3(x+2)}$$

$$C) \frac{(x-2)(x-31)}{3x(x+2)}$$

$$D) \frac{x^2 - 33x - 70}{3x(x+2)}$$

Evaluate the expression. Write answer without exponents.

$$9) 8^{4/3}$$

$$A) 32$$

$$B) 64$$

$$C) 128$$

$$D) 16$$

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

$$10) \left[ \frac{x^2}{y^{-4}} \right]^{1/2}$$

$$A) xy^2$$

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

$$C) xy^{1/2}$$

$$D) xy$$

Simplify the expression.

$$11) (\sqrt{2} - 4)(\sqrt{5} + 2)$$

$$A) \sqrt{10} + 2\sqrt{2} - 4\sqrt{5} - 8$$

$$B) \sqrt{10} - 2\sqrt{5} - 8$$

$$C) -1\sqrt{10} - 8$$

$$D) \sqrt{10} - 8$$

Solve the equation.

$$12) -3.1 = y + 4.2$$

$$A) -7.3$$

$$B) 7.3$$

$$C) -1.1$$

$$D) 1.1$$

**Solve the formula for the specified variable.**

13)  $a + b = s + r$  for  $r$

A)  $r = \frac{a}{s} + b$

B)  $r = s(a + b)$

C)  $r = a + b - s$

D)  $r = \frac{a + b}{s}$

**Solve the problem.**

14) From a point on a river, two boats are driving in opposite directions, one at 7 miles per hour and the other at 11 miles per hour. In how many hours will they be 54 miles apart?

A) 1 hour

B) 5 hours

C) 3 hours

D) 4 hours

**Use factoring to solve the equation.**

15)  $3x^2 - 15x + 18 = 0$

A) -2, -3

B) 2, 3

C) 3, 2, 3

D) 0, 2, 3

**Solve by the square-root property.**

16)  $(x + 4)^2 = 20$

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

B)  $-4 + 2\sqrt{5}, -4 - 2\sqrt{5}$

C)  $2\sqrt{5} - 4, 2\sqrt{5} + 4$

D)  $-4 + 2\sqrt{10}, -4 - 2\sqrt{10}$

**Use the quadratic formula to solve the equation.**

17)  $x^2 - x = -12$

A) 1, 12

B) 3, 4

C) -3, -4

D) No real number solutions

**Find approximate solutions of the equation.**

18)  $(m + 3.16)^2 = 13.69$

A) 1.92, -5.48

B) 0.54

C) 3.24, -3.24

D) 0.54, -6.86

**Solve the problem.**

19) A rug is to fit in a room so that the width of the border is the same on all four sides. If the room is 11 feet by 13 feet and the area of the rug is 35 square feet, how wide will the border be?

A) 5 ft

B) 3 ft

C) 5.5 ft

D) 4 ft

Solve the equation for the indicated variable.

$$20) S = \frac{1}{2}gt^2 \text{ for } t$$

$$A) t = \pm \sqrt{\frac{2S}{g}}$$

$$B) t = 2gS$$

$$C) t = \pm 2\sqrt{gs}$$

$$D) t = \pm \sqrt{\frac{g}{2S}}$$

Answer Key  
Testname: CHAPTER 1 FORM D

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