Name: _____ **Class:** _____ **Date:** _____ **ID: A**

chapter 1 test

____ 1. The table shows how the height of a stack of DVDs depends on the number of DVDs. What is a rule for the height?

Number of DVDs	Height (cm)
2	18
3	27
4	36
n	?

a. $h = 9n$
b. $h = 8n$
c. $h = 2n$
d. $h = \frac{n}{9}$

What is the simplified form of each expression?

____ 2. 7^4
a. 343
b. 16,384
c. 16,807
d. 2,401

____ 3. $\left(\frac{4}{7}\right)^3$
a. $\frac{343}{64}$
b. $\frac{64}{343}$
c. 21952
d. 407

____ 4. What is an expression for the sale price of a bracelet that has been discounted 60% from its sticker price? Evaluate the expression for a sticker price of $90.

Use the variable s for the sale price and p for the sticker price.

a. $s = p - 0.6p$; $36
b. $s = p - 0.4p$; $54
c. $s = p + 60p$; $5490
d. $s = p + 0.6p$; $90

Simplify each expression.

____ 5. $\frac{4sg}{-5g}$
a. $-\frac{4}{5}s$
b. $\frac{4}{5}g$
c. $-\frac{5}{4}s$
d. $-\frac{5}{4}g$

____ 6. $(8 + 7a) + 4$

a. $12 + 11a$
b. $19a$
c. $8 + 11a$
d. $12 + 7a$

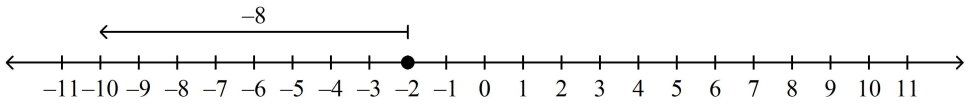
____ 7. Is the statement *true* or *false*?

$(ab)c = a(cb)$.

a. true
b. false

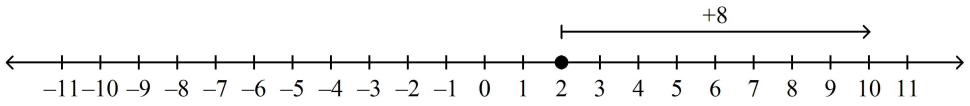
____ 8. Which number line model can you use to simplify $2 + (–8)$?

a.



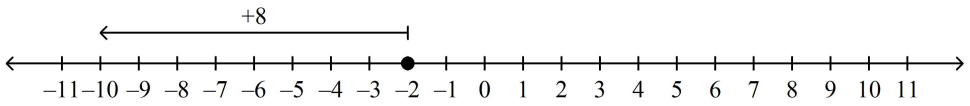
$2 + (–8) = –10$

b.



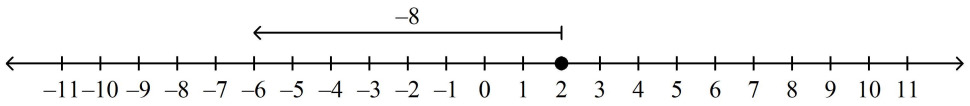
$2 + (–8) = 10$

c.



$2 + (–8) = –10$

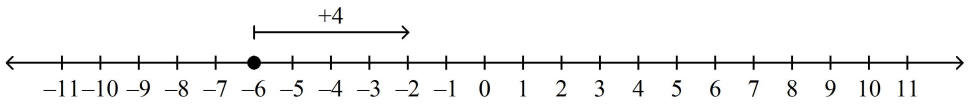
d.



$2 + (–8) = –6$

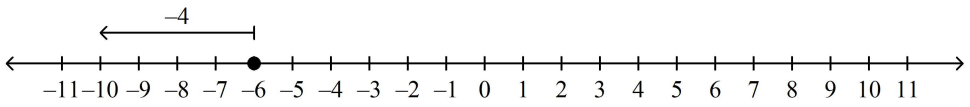
____ 9. Which number line model can you use to simplify –6 + 4?

a.



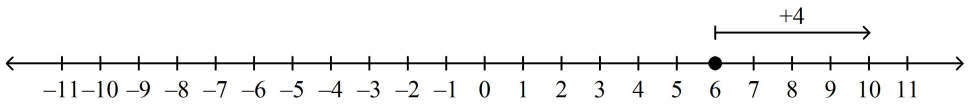
–6 + 4 = –2

b.



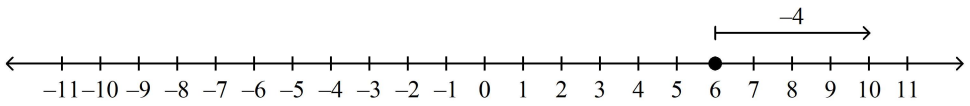
–6 + 4 = –10

c.



–6 + 4 = 10

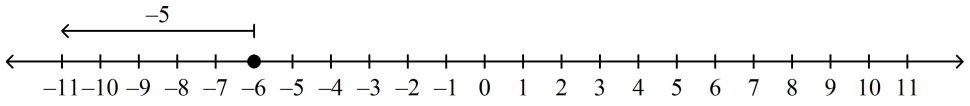
d.



–6 + 4 = 10

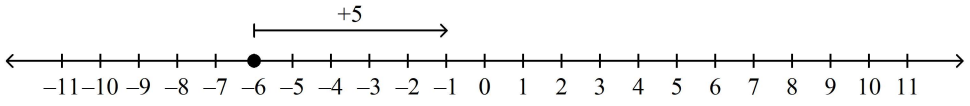
____ 10. Which number line model can you use to simplify –6 + (–5)?

a.



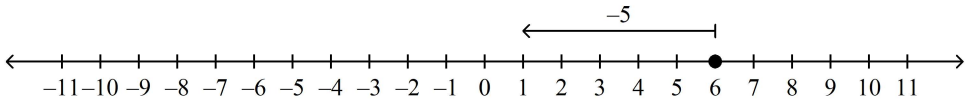
–6 + (–5) = –11

b.



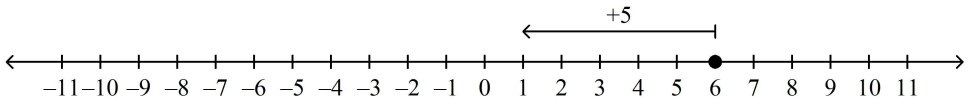
–6 + (–5) = –1

c.



–6 + (–5) = 1

d.



–6 + (–5) = 1

____ 11. What is the value of $\frac{x}{y}$ when $x = \frac{9}{4}$ and $y = \frac{3}{5}$?

a. $\frac{15}{4}$
c. $\frac{27}{20}$
b. $\frac{4}{3}$
d. $-\frac{15}{4}$

____ 12. Is $x = 1$ a solution of the equation $2 - 8x = -6$?

a. yes
b. no

____ 13. A boat builder wants to make a model of a schooner, a type of sailboat with at least two masts. The schooner is 34 meters in length and has a beam of 8 meters (the measure of the widest point of a ship). If the builder wants her model to be 1.2 meters in length, what would be the length of the beam of the model?

a. 5.10 meters
c. 0.70 meters
b. 3.54 meters
d. 0.28 meters

____ 14. A souvenir maker wants to create a scale model of the Eiffel Tower. The Eiffel Tower is 324 meters tall and has a base with dimensions 125 meters by 125 meters. The model will rest on a base with dimensions 5 cm by 5 cm. How tall will the model be in centimeters?

a. 51.84 cm
c. 0.13 cm
b. 0.52 cm
d. 12.96 cm

____ 15. A souvenir maker wants to create a scale model of the Empire State Building. The Empire State Building is 1472 feet tall and has a base with dimensions 286 ft by 286 ft. If the model is 6 in. tall, approximately what are the dimensions of its base in inches?

a. 1.2 in. by 1.2 in.
c. 0.2 in. by 0.2 in.
b. 1 in. by 1 in.
d. 2.3 in. by 2.3 in.

____ 16. Is (3, 13) a solution of the equation $y = 4x$?

a. yes
b. no

____ 17. Which ordered pair is a solution of the equation $y = 3x$?

a. (–2, –9)
c. (–8, –3)
b. (–8, –18)
d. (–10, –30)

____ 18. Which ordered pair is a solution of the equation $y = -9x + 4$?

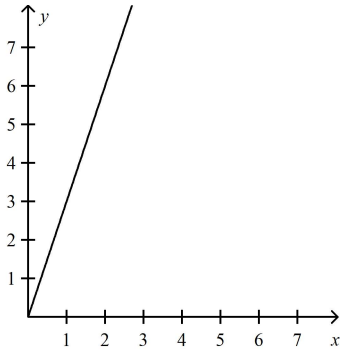
a. (10, –86)
c. (6, –41)
b. (–4, –58)
d. (–6, 57)

____ 19. Bob and his best friend Bill have the same birthday, but Bob is 3 years older than Bill. Let the variable x represent Bob's age and y represent Bill's age. Which equation models the relationship between Bill's age and Bob's age?

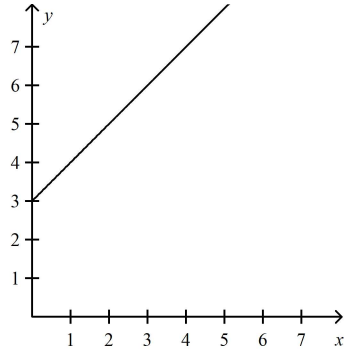
a. $y = x/3$
c. $x = y + 3$
b. $y = x + 3$
d. $y = 3x$

____ 20. Mike and his best friend Dan have the same birthday, but Mike is 3 years older than Dan. Let the variable x represent Mike's age and y represent Dan's age. Which graph models the relationship between Dan's age and Mike's age?

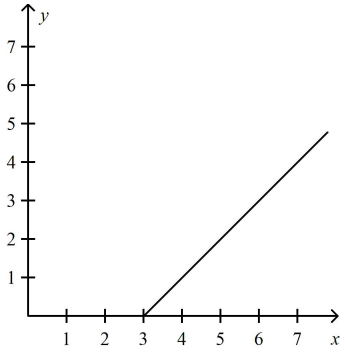
a.



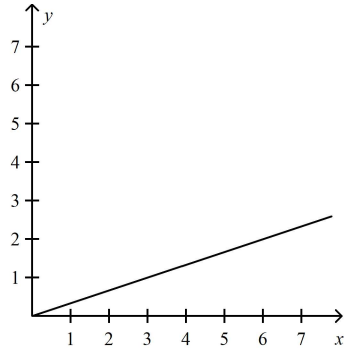
c.



b.



d.



chapter 1 test
Answer Section

1. ANS: A PTS: 1 DIF: L3 REF: 1-1 Variables and Expressions
   OBJ: 1-1.1 To write algebraic expressions NAT: CC A.SSE.1.a| A.1.a| A.3.b
   STA: NC 1.02 TOP: 1-1 Problem 5 Writing a Rule to Describe a Pattern
   KEY: algebraic expression
2. ANS: D PTS: 1 DIF: L2
   REF: 1-2 Order of Operations and Evaluating Expressions
   OBJ: 1-2.1 To simplify expressions involving exponents NAT: CC A.SSE.1.a| N.3.a| N.5.e
   STA: NC 1.02 TOP: 1-2 Problem 1 Simplifying Powers
   KEY: power | exponent | base | simplify | evaluate
3. ANS: B PTS: 1 DIF: L3
   REF: 1-2 Order of Operations and Evaluating Expressions
   OBJ: 1-2.1 To simplify expressions involving exponents NAT: CC A.SSE.1.a| N.3.a| N.5.e
   STA: NC 1.02 TOP: 1-2 Problem 1 Simplifying Powers
   KEY: power | exponent | base | simplify | evaluate
4. ANS: A PTS: 1 DIF: L4
   REF: 1-2 Order of Operations and Evaluating Expressions
   OBJ: 1-2.2 To use the order of operations to evaluate expressions
   NAT: CC A.SSE.1.a| N.3.a| N.5.e STA: NC 1.02
   TOP: 1-2 Problem 4 Evaluating a Real-World Expression KEY: evaluate
5. ANS: A PTS: 1 DIF: L3 REF: 1-4 Properties of Real Numbers
   OBJ: 1-4.1 To identify and use properties of real numbers
   NAT: CC N.RN.3| N.1.d| N.3.d| N.5.f| N.6.a| A.3.d
   TOP: 1-4 Problem 3 Writing Equivalent Expressions KEY: equivalent expressions
6. ANS: D PTS: 1 DIF: L3 REF: 1-4 Properties of Real Numbers
   OBJ: 1-4.1 To identify and use properties of real numbers
   NAT: CC N.RN.3| N.1.d| N.3.d| N.5.f| N.6.a| A.3.d
   TOP: 1-4 Problem 3 Writing Equivalent Expressions KEY: equivalent expressions
7. ANS: A PTS: 1 DIF: L4 REF: 1-4 Properties of Real Numbers
   OBJ: 1-4.1 To identify and use properties of real numbers
   NAT: CC N.RN.3| N.1.d| N.3.d| N.5.f| N.6.a| A.3.d
   TOP: 1-4 Problem 4 Using Deductive Reasoning and Counterexamples
   KEY: deductive reasoning | counterexample
8. ANS: D PTS: 1 DIF: L3
   REF: 1-5 Adding and Subtracting Real Numbers
   OBJ: 1-5.1 To find sums and differences of real numbers
   NAT: CC N.RN.3| N.1.d| N.3.b| N.3.c| N.3.d| A.3.c
   TOP: 1-5 Problem 1 Using Number Line Models KEY: opposites | additive inverses
9. ANS: A PTS: 1 DIF: L3
   REF: 1-5 Adding and Subtracting Real Numbers
   OBJ: 1-5.1 To find sums and differences of real numbers
   NAT: CC N.RN.3| N.1.d| N.3.b| N.3.c| N.3.d| A.3.c
   TOP: 1-5 Problem 1 Using Number Line Models KEY: opposites | additive inverses

10. ANS: A PTS: 1 DIF: L3
REF: 1-5 Adding and Subtracting Real Numbers
OBJ: 1-5.1 To find sums and differences of real numbers
NAT: CC N.RN.3| N.1.d| N.3.b| N.3.c| N.3.d| A.3.c
TOP: 1-5 Problem 1 Using Number Line Models KEY: additive inverses | opposites
11. ANS: A PTS: 1 DIF: L4
REF: 1-6 Multiplying and Dividing Real Numbers
OBJ: 1-6.1 To find products and quotients of real numbers
NAT: CC N.RN.3| N.1.d| N.3.b| N.3.c| N.3.d| A.3.c TOP: 1-6 Problem 4 Dividing Fractions
KEY: multiplicative inverse | reciprocal
12. ANS: A PTS: 1 DIF: L3 REF: 1-8 An Introduction to Equations
OBJ: 1-8.1 To solve equations using tables and mental math NAT: CC A.CED.1| N.2.b| A.3.b
STA: NC 4.01a TOP: 1-8 Problem 2 Identifying Solutions of an Equation
KEY: solution of an equation
13. ANS: D PTS: 1 DIF: L3 REF: 1-8 An Introduction to Equations
OBJ: 1-8.1 To solve equations using tables and mental math NAT: CC A.CED.1| N.2.b| A.3.b
STA: NC 4.01a TOP: 1-8 Problem 3 Writing an Equation
KEY: equation | solution of an equation
14. ANS: D PTS: 1 DIF: L4 REF: 1-8 An Introduction to Equations
OBJ: 1-8.1 To solve equations using tables and mental math NAT: CC A.CED.1| N.2.b| A.3.b
STA: NC 4.01a TOP: 1-8 Problem 3 Writing an Equation
KEY: equation | solution of an equation
15. ANS: A PTS: 1 DIF: L4 REF: 1-8 An Introduction to Equations
OBJ: 1-8.1 To solve equations using tables and mental math NAT: CC A.CED.1| N.2.b| A.3.b
STA: NC 4.01a TOP: 1-8 Problem 3 Writing an Equation
KEY: equation | solution of an equation
16. ANS: B PTS: 1 DIF: L3 REF: 1-9 Patterns, Equations, and Graphs
OBJ: 1-9.1 To use tables, equations, and graphs to describe relationships
NAT: CC A.CED.2| CC A.REI.10| A.1.a
TOP: 1-9 Problem 1 Identifying Solutions of a Two-Variable Equation
KEY: solution of an equation
17. ANS: D PTS: 1 DIF: L3 REF: 1-9 Patterns, Equations, and Graphs
OBJ: 1-9.1 To use tables, equations, and graphs to describe relationships
NAT: CC A.CED.2| CC A.REI.10| A.1.a
TOP: 1-9 Problem 1 Identifying Solutions of a Two-Variable Equation
KEY: solution of an equation
18. ANS: A PTS: 1 DIF: L3 REF: 1-9 Patterns, Equations, and Graphs
OBJ: 1-9.1 To use tables, equations, and graphs to describe relationships
NAT: CC A.CED.2| CC A.REI.10| A.1.a
TOP: 1-9 Problem 1 Identifying Solutions of a Two-Variable Equation
KEY: solution of an equation
19. ANS: C PTS: 1 DIF: L4 REF: 1-9 Patterns, Equations, and Graphs
OBJ: 1-9.1 To use tables, equations, and graphs to describe relationships
NAT: CC A.CED.2| CC A.REI.10| A.1.a TOP: 1-9 Problem 2 Using a Table, an Equation, and a Graph
KEY: solution of an equation | inductive reasoning

20. ANS: B PTS: 1 DIF: L4 REF: 1-9 Patterns, Equations, and Graphs
OBJ: 1-9.1 To use tables, equations, and graphs to describe relationships
NAT: CC A.CED.2| CC A.REI.10| A.1.a TOP: 1-9 Problem 2 Using a Table, an Equation, and a Graph
KEY: graphing | algebraic relationships | inductive reasoning