New York State Testing Program

Mathematics Test
Book 1

Grade **8**

March 12–16, 2007

TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Be sure to read carefully all the directions in the test book.
- You may use your tools to help you solve any problem on the test.
- Read each question carefully and think about the answer before choosing your response.

This picture means that you will use your ruler.

This picture means that you will use your protractor.

Sample A

What is the shape of each base of a cylinder?

A   circle

B   rectangle

C   triangle

D   square

Sample B

Ellen buys 24 ounces of green beans at the grocery store. The green beans cost $1.90 per pound. How much does she pay for the green beans, before tax?

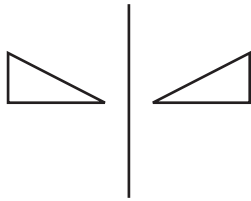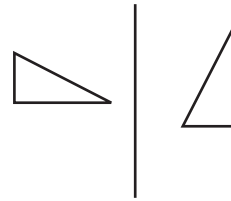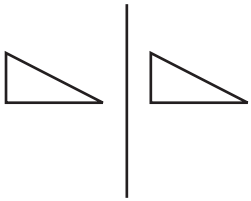| 1 pound = 16 ounces |
|---|

A $1.90

B $2.53

C $2.85

D $3.80

STOP

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Book 1

Page 3

1 Which figure below shows a reflection?

A

C

B
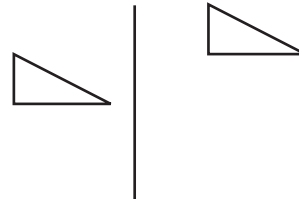
D

2 Anneke and her parents had dinner at their favorite restaurant. The dinner bill was $50.00, and her parents tipped their server 20% of the bill. How much money did Anneke's parents leave as a tip?

A $1.00

B $10.00

C $20.00

D $25.00

Go On

3 Simplify the expression below.

$$12xy - 15x + 6xy$$

A $-9xy$

B $3xy$

C $18xy - 15x$
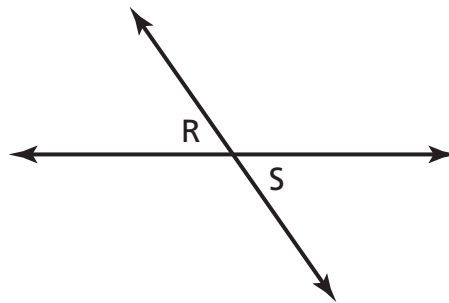
D $6xy - 15x$

4 In the figure below, ∠R and ∠S are formed by two intersecting lines.

If ∠R measures 55°, what is the measure of ∠S?

A 35°

B 55°

C 110°

D 125°

5 What value of *x* makes the equation below true?

$$\frac{x + 3}{2} = 8$$

A 1

B 5

C 13

D 19

6 What is the length, in centimeters, of side *x* in the right triangle below?
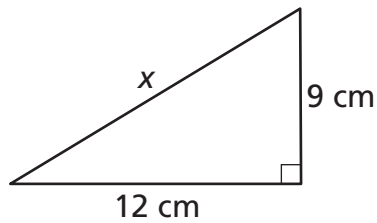
[not drawn to scale]

Pythagorean theorem:
$$c^2 = a^2 + b^2$$

A 8

B 12

C 15

D 21

Go On

7 The scale of a map is $\frac{1}{4}$ inch $= 12$ miles. The distance between two cities on the map is $3\frac{1}{4}$ inches. What is the actual distance, in miles, between the two cities?
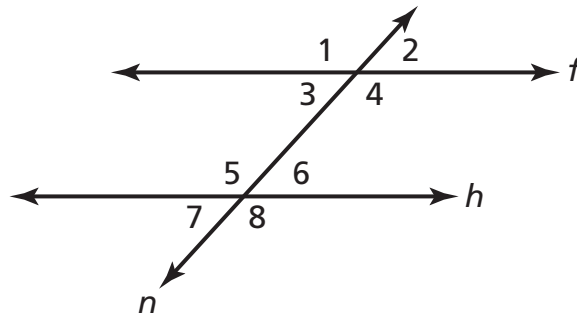
A 37

B 39

C 144

D 156

8 Sarah earned a 4% commission on all of her sales in March. Her total sales were $80,000 in March. How much money did she earn from commissions?

A $320

B $3,200

C $32,000

D $320,000

9   In the diagram below, line f and line h are parallel, and line n is a transversal.

Which term expresses the relationship between ∠1 and ∠8?

A   adjacent

B   congruent

C   supplementary

D   complementary

10   What is the product of $(6a^2b^3c^4)$ and $(3a^3b^4c)$?

A $9a^5b^7c^4$

B $9a^5b^7c^5$

C $18a^5b^7c^5$

D $18a^5b^7c^4$

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Book 1

Page 9

11 What is the sum of $(3 + 3)^2$ and 2^3 ?

    A   18

    B   20

    C   26

    D   44

12 Simplify the expression below.
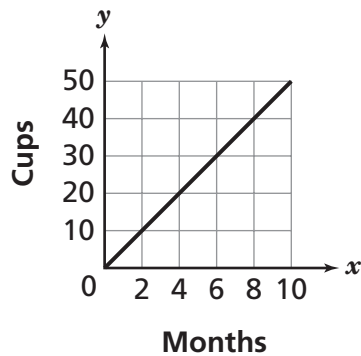
$$(3x^3 + 2x^2 - 5x) + (-8x^3 + 3x)$$

    A $-11x^3 + 2x^2 - 2x$

    B $11x^3 - 2x^2 + 8x$

    C $-5x^3 + 2x^2 - 2x$

    D $5x^3 - 2x^2 - 8x$

13 Wendy draws the graph below to represent a situation.

WENDY'S CUP COLLECTION

Which statement correctly interprets the graph?

A Wendy's cup collection is decreasing over time.

B Wendy's cup collection is increasing over time.

C Wendy's cup collection sometimes increases and sometimes decreases.

D Wendy's cup collection remains the same size over time.
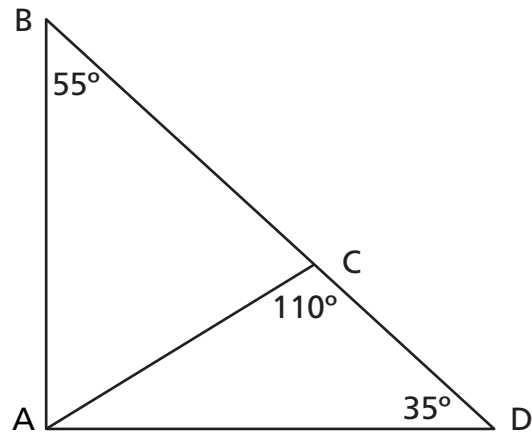
14 In order to purchase a new CD player, Rosa must save **at least** $85.00. What inequality represents the amount of money, m, Rosa must save?

A $m \leq 85.00$

B $m < 85.00$

C $m \geq 85.00$

D $m > 85.00$

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Page **11**

15 Which two angles in the triangles below are complementary?

B

55°

C

110°

A

35° D

[not drawn to scale]

A ∠BAC and ∠CAD

B ∠CDA and ∠CAD

C ∠ABC and ∠BAC

D ∠BCA and ∠ACD

16 In the diagram below, line *r* and line *t* are parallel, and line *p* is a transversal.
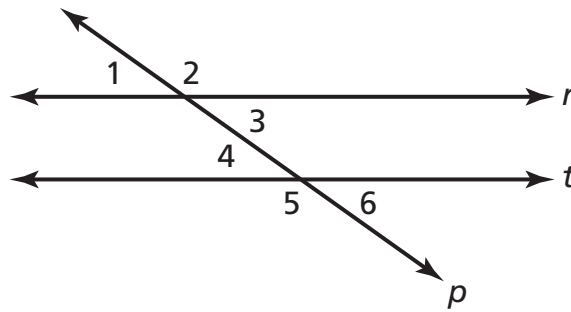
Which angles are supplementary?

A ∠1 and ∠3

B ∠1 and ∠2

C ∠3 and ∠6

D ∠3 and ∠4

17 What is the quotient of $\dfrac{24x^6y^{12}z^{18}}{6x^3y^6z^9}$?

A $4x^2y^2z^2$

B $4x^3y^6z^9$

C $18x^2y^2z^2$

D $18x^3y^6z^9$

Go On

Book 1

18 Based on the Pythagorean theorem, which relationship is true for the sides of the triangle shown below?
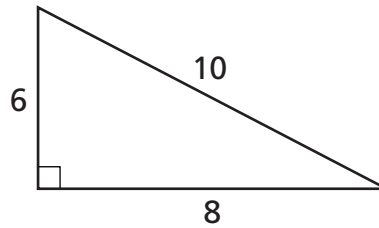
Pythagorean theorem:
$$c^2 = a^2 + b^2$$

A $8^2 + 10^2 = 6^2$

B $6^2 + 8^2 = 10^2$

C $6^2 + 8^2 = 10$

D $6^2 + 10^2 = 8^2$

19 A 20-ounce bag of popcorn costs $2.80. If the unit price stays the same, how much does a 35-ounce bag of popcorn cost?

A $3.60

B $4.00

C $4.50

D $4.90

20 What is the product of the expression below?

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

A $4x^2 + 16x + 15$

B $4x^2 - 16x - 15$

C $4x^2 + 16x - 15$

D $4x^2 - 16x + 15$

21 The table below shows a relationship between x and y.

x	y
2	8
4	10
6	12
8	14
10	16

What equation represents the relationship between x and y?

A $y = 2x$

B $y = 4x$

C $y = x + 6$

D $y = 2x + 2$

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Book 1

Page **15**

22 Bruce needs 30 five-foot pieces of rope for a school project. The hardware store sells rope by the yard. How many yards of rope will Bruce need to purchase?

    A 10

    B 30

    C 50

    D 75

23 Simplify the expression below.

$$(3a^2 + 5a - 11) - (11a^2 + 2a - 12)$$
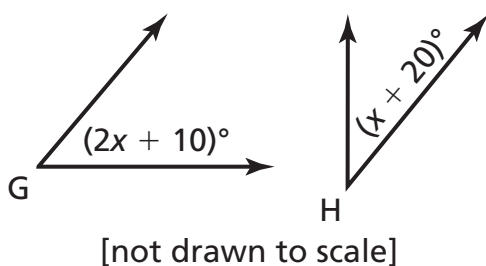
    A $-8a^2 + 3a + 1$

    B $-8a^2 + 7a - 23$

    C $14a^2 + 7a + 1$

    D $14a^2 + 3a - 23$

24 What is the product of the expression below?

$$(a - 3b)(2a + 2b)$$

A $2a^2 - 4ab - 6b^2$

B $2a^2 + 4ab - 6b^2$

C $2a - 4ab - 6b$

D $2a + 4ab + 6b$

25 In the diagram below, ∠G and ∠H are complementary.

$(2x + 10)°$

$(x + 20)°$

G

H

[not drawn to scale]

What is the measure of ∠G?

A 20°

B 30°

C 40°

D 50°

26 Ms. Snyder wants to buy a television at an electronics store. All televisions at the store are $\frac{3}{4}$ of the original price, p. She has a $40 discount coupon she will use during the sale. Which equation should Ms. Snyder use to find the final price, f, of a television?

A $f = \frac{3}{4}(p - 40)$

B $f = \frac{1}{4}(p - 40)$

C $f = \frac{1}{4}p - 40$

D $f = \frac{3}{4}p - 40$

27 Use your ruler to help you solve this problem.

Maria is planning a car trip from Niagara Falls to East Aurora.

SCALE
1 cm = 5 miles

What is the approximate driving distance from Niagara Falls to East Aurora?

A 20 miles

B 30 miles

C 40 miles

D 50 miles

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