Skills Inventory Posttest

Part A: Computation

Circle the letter for the correct answer to each problem.

1. $9.802 + 0.08 =$
A 10.602
B 9.81
C 9.882
D 9.722
E None of these

2. $59.2 - 5.8 =$
F 1.2
G 54.4
H 53.4
J 66
K None of these

3. What is 60% of 115?
A 69
B 52.2
C 19.2
D 73
E None of these

4. $16 \times (-4) =$
F 4
G -4
H 64
J -64
K None of these

5. $\begin{array}{r} \frac{2}{3} \\ -\frac{1}{6} \\ \hline \end{array}$
A $\frac{1}{6}$ C $\frac{1}{3}$
B $\frac{1}{2}$ D $\frac{1}{9}$
E None of these

6. $0.072 \div 6 =$
F 12
G 0.12
H 0.012
J 0.0012
K None of these

7. $5\overline{)1.75}$
A 0.31
B 3.1
C 0.41
D 3.5
E None of these

8. $3\frac{1}{5} \times \frac{2}{3} =$
F $2\frac{2}{15}$ H $\frac{2}{3}$
G $3\frac{2}{15}$ J $\frac{8}{15}$
K None of these

9. $-15 + (-2) =$
A 13
B -13
C -17
D 17
E None of these

10. $3^2 \times 10^4 =$
F 30^6
G 90,000
H 300,000
J 30^8
K None of these

11. $20 + 20 \div 4 - 4$
A 6
B 21
C -40
D -24
E None of these

12. $\begin{array}{r} 90.15 \\ \times\ 6 \\ \hline \end{array}$
F 540.9
G 540.6
H 54.9
J 5.409
K None of these

13.

$3x(x^2 + xy^2) =$

A $4x^2 + 3x^2y^2$
B $3x^3 + 3xy^2$
C $3x^3 + 3x^2y^2$
D $3x^4y^2$
E   None of these

14. What is 125% of 42?

F   300   H   33.6
G   52.5   J   525
K   None of these

15. What percent of $15 is 60¢?

A   4%   C   2.5%
B   25%   D   40%
E   None of these

16.

$9\frac{1}{4} - 2\frac{1}{2} =$

F   7   H $6\frac{1}{2}$
G $6\frac{3}{4}$ J $13\frac{1}{2}$
K   None of these

17.

$\frac{-15}{-5} =$

A   −5   C   3
B   5   D   −3
E   None of these

18.

320% of $\square$ = 96

F   307.2   H   30
G $33\frac{1}{3}$ J   300
K   None of these

19. $2x + x(3 + xy + y^2) =$

A $5x^2 + x^2y + xy^2$
B $6x + x^2y + xy^2$
C $5x + x^3y^3$
D $5x + x^2y + xy^2$
E   None of these

20.

$xy + x + x =$

F $3xy$
G $2xy$
H x^3y
J $xy + 2x$
K   None of these

21.

30% of $\square$ = 21

A   70
B   63
C   14.2
D   76
E   None of these

22.

$\frac{1}{2} + \frac{3}{4} + \frac{1}{12} =$

F $1\frac{1}{4}$ H $\frac{1}{3}$
G $\frac{1}{4}$ J $1\frac{1}{3}$
K   None of these

23.

$5\frac{1}{4} \div 2\frac{1}{3} =$

A $10\frac{1}{12}$ C $12\frac{1}{4}$
B $2\frac{1}{4}$ D $5\frac{1}{4}$
E   None of these

24.

$-2 \div (-7) =$

F   5
G   −5
H   −9
J   9
K   None of these

25.

$6 + (-8) =$

A   −14
B   14
C   2
D   −2
E   None of these

Part B: Applied Mathematics

1. You are estimating by rounding to the nearest whole number. What numbers should you use to estimate the product of 8.02 and 1.87?

   A 8 and 1   C 8.0 and 1.9
   B 8 and 2   D 8.0 and 1.8

2. By how much does the value of the number 234,679 increase if you change the 3 to a 4?

   F one
   G one thousand
   H ten thousand
   J one hundred thousand

3. $\sqrt{64} + \sqrt{9} =$

   A $\sqrt{73}$ C 36.5
   B 11   D $\sqrt{20}$

4. One serving of ice cream is $\frac{1}{2}$ cup. How many servings of ice cream are there in $\frac{1}{2}$ gallon?

   F 8   H 16
   G 5   J 32

5. Which of these statements is true?

   A $-4 > -2$ C $-4 > 0$
   B $-4 > 3$ D $-4 > -5$

6. Between what two whole numbers is $\sqrt{15}$?

   F 14 and 15   H 3 and 4
   G 2 and 3   J 4 and 5

7. Which of these numbers, when added to 0.09, produces a sum greater than 1?

   A 0.1   C 0.12
   B 0.02   D 0.92

8. Which of these fractions is greater than $\frac{1}{2}$?

   F $\frac{3}{7}$ H $\frac{5}{6}$

   G $\frac{2}{5}$ J $\frac{4}{9}$

9. On a buying trip, Kurt buys 50 sweaters for $9.50 each. He then sells them for $50 each at a craft fair. Which of these number sentences can Kurt use to figure out how much money he made?

   A $50(\$50) - 50(\$9.50) = \square$
   B $50(\$50) \times 50(\$9.50) = \square$
   C $50(\$50) = \square$
   D $50(\$50) - \$9.50 = \square$

10. For which of these situations could you use an estimate?

    F writing checks
    G reporting finishing times in a race
    H finding the distance between two towns
    J making out time cards

11. Which of these equations represents the relationship that 2 times the difference between 10 and a number is 40?

    A $2n - 10 = 40$
    B $2(10 - n) = 40$
    C $2(10) - n = 40$
    D $2(40) = 10 - n$

12. Which of these numbers has a value between -2 and -6?

    F -7 H -1
    G 0 J -3

This table gives parents an idea of how much money they can expect to spend raising their children. It shows the average amount that experts predict middle-class parents will spend each year per child. Use the table for Numbers 13–17.

Estimated Yearly Costs of Raising a Child Born in 2000

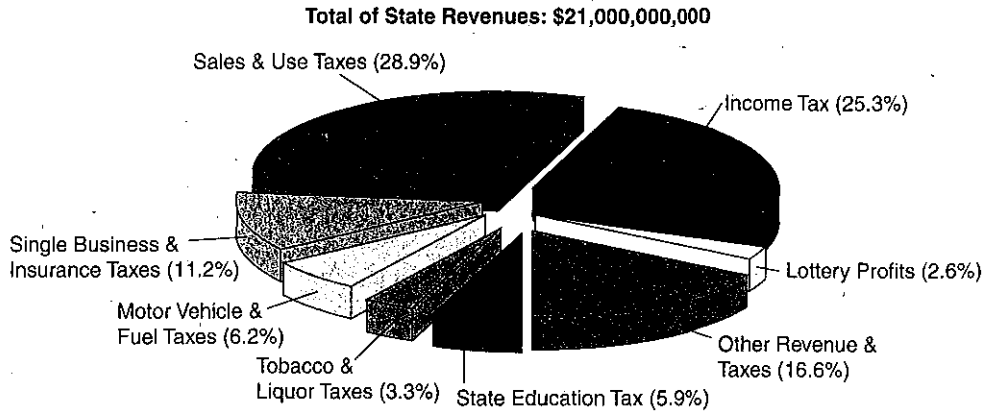| Child's Age	Yearly Costs	Child's Age	Yearly Costs
under 1	$ 8,740	9	$12,520
1	9,070	10	13,000
2	9,420	11	13,490
3	10,040	12	15,160
4	10,420	13	15,740
5	10,820	14	16,330
6	11,240	15	17,250
7	11,670	16	17,910
8	12,120	17	18,590
		Total	**$233,530**

Source: 2000 Annual Report,
U.S. Department of Agriculture

13. According to the table, approximately what percent of the total cost of raising a child born in 2000 will be spent when the child is under 1 year old? (Round to the nearest percent.)

A 2% C 4%
B 3% D 5%

14. If 18% of the estimated cost for raising the child when he/she is 5 years old is spent on food, about how much will be spent on food?

F $1,000 H $3,000
G $2,000 J $4,000

15. Sending a child to college increases the cost of raising the child by about 50%. About how much can a middle-class parent who sends a child to college expect to spend altogether on the child?

A $ 200,000 C $400,000
B $1,200,000 D $350,000

16. According to the table, what is the median yearly cost for a middle-class family to raise a child born in 2000 through the age of 17?

F $12,120 H $12,520
G $12,320 J $12,975

17. Two parents decide to make a graph showing how much they can expect to pay each year of their child's life. Which of these graphs shows the general relationship between the child's age and the yearly expense of raising the child?
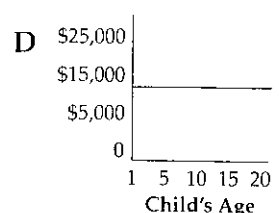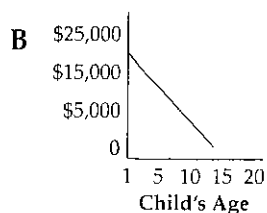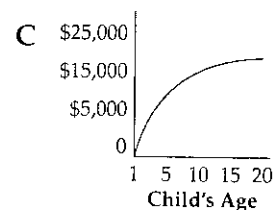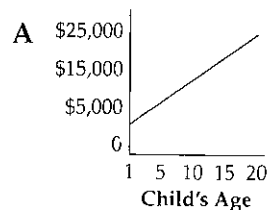
This graph shows one state's income for a year. Study the graph. Then use it to answer Questions 18–21.

Total of State Revenues: $21,000,000,000

Sales & Use Taxes (28.9%)

Income Tax (25.3%)

Single Business & Insurance Taxes (11.2%)

Motor Vehicle & Fuel Taxes (6.2%)

Lottery Profits (2.6%)

Tobacco & Liquor Taxes (3.3%)

State Education Tax (5.9%)

Other Revenue & Taxes (16.6%)

18. What fraction of the state's income came from income taxes?

F about $\frac{1}{2}$ H about $\frac{1}{4}$

G about $\frac{1}{3}$ J about $\frac{1}{5}$

19. How much were the lottery profits for the year shown?

A $5,460 million
B $5.46 million
C $54.6 million
D $546 million

20. What percentage of the state's income came from a combination of lottery profits, motor vehicle and fuel taxes, and single business and insurance taxes?

F 15%   H 25%
G 20%   J 30%

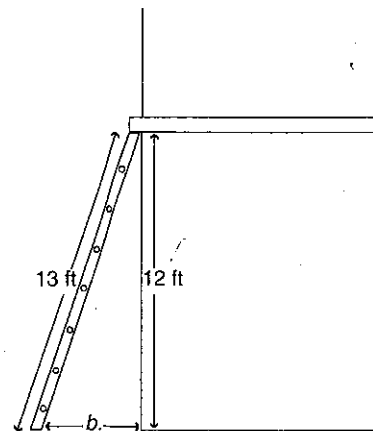21. How much more did the state make through sales and use taxes than it made through income taxes?

A $ 3.6 million
B $756 million
C $606 million
D $360 million

22. Jerold needs to set his ladder to reach a window that is 12 feet above the ground. His ladder is 13 feet long. How far from the wall should he place the base of the ladder?

13 ft   12 ft

b.

F 8 ft   H 6 ft
G 7 ft   J 5 ft

23. How much farther do you run on a circular course by running 1 complete lap in the lane that is 21 feet from the center than the lane that is 14 feet from the center? (Use $\pi = \frac{22}{7}$)

A 22 ft C 66 ft
B 44 ft D 88 ft

24. A guard on duty walks around a building that is 120 feet long and 42 feet wide. If each step he takes averages 30 inches, about how many steps does he take with each trip around the building?

F 323 H 973
G 130 J 420

25. An airplane travels due west 65 km and then 72 km due north. How many kilometers is the plane from its starting point? (Use the Pythagorean Theorem)

A 85 km C 137 km
B 68.5 km D 97 km

26. Mr. Tang uses a whirling sprinkler to water his lawn. The sprinkler waters a circle with a radius of 3 meters. What is the area of the lawn watered by the sprinkler as it whirls?

F 18.84 sq meters
G 24.62 sq meters
H 28.26 sq meters
J 30.5 sq meters

27. What is the probability of randomly choosing an even multiple of 3 from a bag of disks numbered 1 through 25?

A $\frac{4}{25}$ C $\frac{7}{25}$

B $\frac{1}{4}$ D $\frac{2}{5}$

28. Mr. Hernandez received a $450 commission for the sale of a boat. This represented an 8% commission on the price of the boat. What was the cost of the boat?

F $3,600 H $4,499
G $4,075 J $5,625

29. Which of these inequalities means that 13 is greater than 4 times a number?

A $13 - 4 > n$
B $13 > 4 + n$
C $13(4) > n$
D $13 > 4n$

30. How many numbers in the box are equivalent to $\frac{3}{4}$?

75%	$\frac{12}{16}$	3.4	0.75	$\frac{7}{28}$

F 1 H 3
G 2 J 4

31. Which group of integers is in order from least to greatest?

A 0, −11, −9, 2, 3, 15
B 0, 2, 3, −1, −11, 15
C −9, −11, 0, 2, 3, 15
D −11, −9, 0, 2, 3, 15

32. What rule is applied to the input number (x) to produce the output number (y)?

Input (x)	-1	-2	-3	-4	-5
Output (y)	4	6	8	10	12

F Subtract 1 from x, then multiply by -2.
G Multiply x by -5, then add x.
H Add 5 to x.
J Multiply x by x, then add 4.

In the diagram, two sides of square ABCD sit on the x- and y-axes. The sides of squares ABCD and EFGH are parallel. Study the diagram. Then do Numbers 33-42.
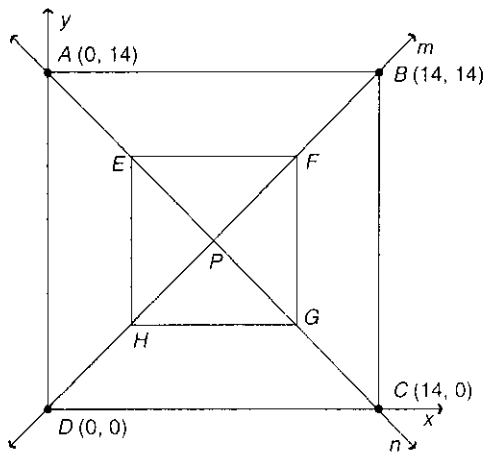
33. What are the coordinates for the point at which line m intersects line n?

A (7, 7)   C (0, 7)
B (7, 0)   D (7, 14)

34. Which describes the relationship between $\angle EPH$ and $\angle FPG$?

F corresponding angles
G vertical angles
H adjacent angles
J complementary angles

35. What is the measure of $\angle BCP$?

A 30°   C 90°
B 45°   D 135°

36. Which is the correct name for figure ABFE?

F parallelogram
G rhombus
H trapezoid
J rectangle

37. Which angle is a supplement to $\angle BCD$?

A $\angle BFD$ C $\angle FGH$
B $\angle EAD$ D $\angle APC$

38. What is the area of triangle $\angle CDB$?

F 98 square units
G 64 square units
H 49 square units
J 24.5 square units

39. If square ABCD were flipped over the y-axis, what would be the coordinates for B'?

A (14, -14)
B (-14, -14)
C (-14, 14)
D (14, 14)

40. Angle HGC is this type of angle.

F right
G acute
H vertical
J obtuse

41. What is the ratio for the length of $\overrightarrow{AB}$ to that of $\overleftrightarrow{EF}$?

   A 1:2   C 2:1

   B 1:4   D 4:1

42. This word describes the relationship between $\overleftrightarrow{AB}$ and $\overleftrightarrow{BC}$

   F parallel

   G perpendicular

   H vertical

   J obtuse

Read this advertisement. Then answer Questions 43–46.

**Use Clear Tone and save from 50% to 80%
on calls to these countries!**

Charges for a 2-min call from the U.S.

	Clear Tone*	Call Right**
Australia	$0.60	$3.00
Bahamas	0.60	2.40
Brazil	1.00	3.50
Britain	0.40	2.00
China	1.75	5.25
Cuba	1.70	3.40
France	0.60	2.40
Greece	1.00	4.00
Italy	0.80	3.20
Japan	0.70	2.80
Philippines	1.30	3.90
Poland	1.00	3.00
Sweden	0.70	2.10

* $6.25 monthly service charge
   28 cents for each additional minute.

** 15 cents for each additional minute.

43. For which country is Clear Tone's charge 50% of the Call Right's charge?

   A Australia

   B Brazil

   C Cuba

   D Greece

44. If you make ten 5-minute calls to Greece in one month, how much would you save using Clear Tone rather than Call Right?

   F $53.75

   G $19.85

   H $23.75

   J $32.50

45. Last month, Ming used Clear Tone to make four 2-minute calls to China and two 2-minute calls to Britain. Which of these is the charge that should appear on Ming's bill?

   A $7   C $14.05

   B $2.15   D $17.40

46. Flora buys a package with Clear Tone that gives her unlimited calls within her area code for $22 a month, including the service charge. The only long distance call she makes is a call to Poland once a week. If she keeps those calls down to 2-minutes each, how much will her yearly phone bill be?

   F $264

   G $ 74

   H $316

   J $176

47. If this pattern continues, which of the figures below will be next?

A   C

B   D
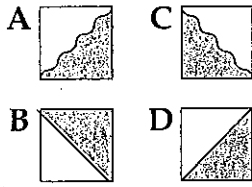
48. What value goes in the box to make the number sentence true?

$$5.24 \times \square = 52{,}400$$

F 10^2
G 10^3
H 10^4
J 10^6

Skills Inventory Posttest Evaluation

Use these answer keys to check your posttest. The evaluation charts match each problem in the posttest to a skill area. The charts will refer you to pages in this book that can provide information and practice to help you with problems you missed.

Answer Key—Part A: Computation

1.	C	14.	G
2.	H	15.	A
3.	A	16.	G
4.	J	17.	C
5.	B	18.	H
6.	H	19.	D
7.	E	20.	J
8.	F	21.	A
9.	C	22.	J
10.	G	23.	B
11.	B	24.	F
12.	F	25.	D
13.	C		

Evaluation Chart—Part A: Computation

Problem Number	Skill Area	Text Pages
1, 2, 6, 7, 12	Decimals	32–44, 51–52
5, 8, 16, 22, 23	Fractions	48–63
4, 9, 17, 24, 25	Integers	68–72
3, 14, 15, 18, 21	Percents	82–86
11	Order of Operations	17
10, 13, 19, 20	Algebraic Operations	113–123

Answer Key—Part B: Applied Mathematics

1.	B	25.	D
2.	H	26.	H
3.	B	27.	A
4.	H	28.	J
5.	D	29.	D
6.	H	30.	H
7.	D	31.	D
8.	H	32.	F
9.	A	33.	A
10.	H	34.	G
11.	B	35.	B
12.	J	36.	H
13.	C	37.	C
14.	G	38.	F
15.	D	39.	C
16.	G	40.	J
17.	A	41.	C
18.	H	42.	G
19.	D	43.	C
20.	G	44.	G
21.	B	45.	C
22.	J	46.	H
23.	B	47.	C
24.	G	48.	H

Evaluation Chart—Part B: Applied Mathematics

Problem Number	Skill Area	Text Pages
2, 3, 5, 6, 7, 8, 12, 30, 31, 41, 48	Number and Number Operations	12, 39–40, 50–52, 76–80
13, 15, 21, 26	Computation in Context	45, 64–65, 73, 81, 88–91, 124
1, 4, 14	Estimation	28–29, 35, 54, 146–151
10, 22, 23, 24, 35, 37	Measurement	145–157
25, 33, 34, 36, 38, 39, 40, 42	Geometry and Spatial Sense	130–142
17, 18, 19, 20, 43	Data Analysis	99–107
16, 27	Statistics and Probability	94–98
9, 11, 29, 32, 47	Patterns, Functions, Algebra	110–127
28, 44, 45, 46	Problem Solving and Reasoning	22–29, 64–65, 81, 124