FSCJ

Florida State College at Jacksonville

Assessment and Certification Centers

PERT

Postsecondary Education Readiness Test

Study Guide for Mathematics

Note: Pages 1 through 7 are a basic review. Pages 8 forward are more relevant to the content of the PERT mathematics assessment.

Florida State College Review for PERT Mathematics – Part 1

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

1. $29+16 \bullet 13$
   A. 455 B. 585
   C. 58 D. 237

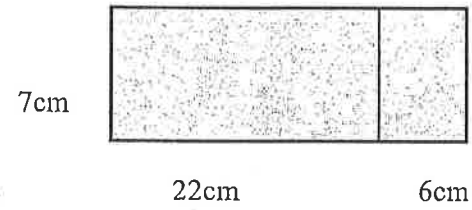
2. $96-5 \bullet 2 \bullet 3$
   A. 546 B. 86
   C. 546 D. 66

3. $\frac{9-2}{4+3}$
   A. 7 B. 3
   C. 9 D. 1

4. $(7+1)(7-1)$
   A. 47 B. 48
   C. 49 D. 14

Find the area of the shaded area.

5.



   A. 196 square centimeters
   B. 924 square centimeters
   C. 35 square centimeters
   D. 174 square centimeters

Find the average.

6. 11, 16, 15, 22
   A. 64 B. 15
   C. 17 D. 16

Solve.

7. For five mathematics tests your scores were 81, 86, 81, 76, 71. What was your average score?
   A. 383 B. 78
   C. 79 D. 75

Choose a strategy and solve.

8. Your car gets about 30 miles per gallon. You are planning to drive to see your friends who live about 930 miles away. How many gallons of gas will you need to purchase to make the trip to see your friends and to return home? State your answer to the nearest gallon.
   A. about 30 gallons
   B. about 45 gallons
   C. about 62 gallons
   D. about 51 gallons

9. In 1998 your house cost $82,400. In 2000 your house was valued at $102,650. How much did the value of your home increase?
   A. $19,250
   B. $20,250
   C. No increase, it was a decrease
   D. $21, 250

10. While shopping you note the average price for a CD is $8 including tax. You have $112 in your pocket. About how many CDs can you buy?
    A. 21 B. 14
    C. 17 D. 19

11. In 2000 you weighed 175 pounds. In 2001 you weighed 162 pounds, and in 2002 you weighed 154 pounds. How many pounds did you lose from 2000 to 2002?

A. 21 pounds
B. No weight loss, you gained weight
C. 13 pounds
D. 8 pounds

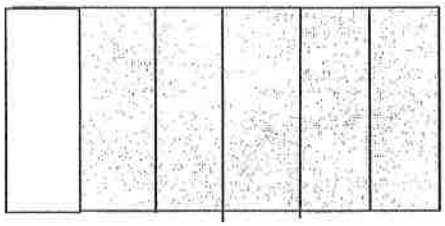
Solve.

12. Write this expression in words.
$8 + 16 = 24$

A. The sum of 8 and 16 is 24
B. The difference between 8 and 16 is 24
C. The product of 8 and 16 is 24
D. The quotient of 8 and 16 is 24

Identify a fraction or mixed number that represents the shaded part of the figure.

13.



A. 5 B. $\frac{1}{5}$ C. $\frac{1}{6}$ D. $\frac{5}{6}$

Write the number as an improper fraction.

14. $10\frac{3}{4}$

A. $\frac{40}{4}$ B. $\frac{43}{4}$ C. $\frac{34}{3}$ D. $\frac{40}{3}$

Write the improper fraction as a mixed number.

15. $\frac{17}{5}$

A. $3\frac{2}{5}$ B. $3\frac{2}{3}$ C. $2\frac{3}{5}$ D. $5\frac{2}{5}$

Solve for n.

16. $\frac{5}{16} = \frac{n}{80}$

A. 80 B. 25 C. 5 D. 400

17. $3 = \frac{n}{5}$

A. 15 B. $\frac{5}{3}$ C. $\frac{1}{15}$ D. $\frac{3}{5}$

Simplify the fraction.

18. $\frac{12}{20}$

A. $\frac{4}{5}$ B. $\frac{3}{4}$ C. $\frac{12}{20}$ D. $\frac{3}{5}$

19. $\frac{15}{4}$

A. $1\frac{3}{4}$ B. $3\frac{1}{2}$ C. $3\frac{3}{4}$ D. $4\frac{1}{4}$

Between the pair of numbers, place the correct sign: <, =, or >.

20. $\frac{1}{2} \_\_ \frac{3}{8}$

A. < B. > C. =

21. $\frac{4}{16} \_\_ \frac{4}{13}$

A. < B. > C. =

Solve the problem below. Write your answer in simplest form.

22. Of a family's \$750 weekly income, \$35 usually goes toward groceries. What fraction of the family's weekly income is usually spent on groceries?

A. $\frac{35}{750}$ B. $\frac{7}{150}$

C. $\frac{150}{7}$ D. $\frac{750}{35}$

23. You need a piece of fabric $\frac{5}{12}$ yard long. Which of these is the smallest piece of fabric that would work?

A. $\frac{1}{2}$ yard B. $\frac{5}{16}$ yard

C. $\frac{2}{3}$ yard

Add and simplify.

24. $\frac{1}{4}+\frac{2}{4}$

A. $\frac{3}{8}$ B. $\frac{3}{4}$

C. $\frac{1}{2}$ D. $\frac{3}{16}$

25. $\frac{5}{27}+\frac{4}{27}+\frac{12}{27}$

A. $\frac{20}{27}$ B. $\frac{7}{9}$

C. $\frac{21}{27}$ D. $\frac{21}{81}$

26. $\frac{1}{3}+\frac{1}{2}$

A. $\frac{1}{6}$ B. $\frac{2}{3}$

C. $\frac{5}{6}$ D. $\frac{3}{4}$

27. $\frac{2}{3}+\frac{1}{12}$

A. $\frac{3}{4}$ B. $\frac{9}{12}$ C. $\frac{1}{4}$ D. $\frac{7}{12}$

28. $2\frac{1}{2}+1\frac{5}{8}$

A. $3\frac{6}{8}$ B. $4\frac{1}{2}$ C. $3\frac{1}{8}$ D. $4\frac{1}{8}$

29. $5\frac{1}{3}+17\frac{1}{5}$

A. $22\frac{2}{15}$ B. $23\frac{2}{15}$

C. $22\frac{8}{15}$ D. $23\frac{8}{15}$

30. $2\frac{7}{8}+3\frac{1}{5}+\frac{1}{2}$

A. $7\frac{23}{40}$ B. $5\frac{23}{40}$

C. $6\frac{1}{2}$ D. $6\frac{23}{40}$

Subtract and simplify.

31. $\frac{5}{6}-\frac{1}{6}$

A. $\frac{2}{3}$ B. $\frac{1}{3}$

C. $\frac{4}{12}$ D. $\frac{1}{2}$

32. $\frac{26}{11}-\frac{51}{11}$

A. $-2\frac{3}{11}$ B. $1\frac{9}{11}$

C. $3\frac{1}{11}$ D. $2\frac{10}{11}$

33. $\frac{8}{9}-\frac{1}{2}$

A. $1\frac{7}{18}$ B. $\frac{7}{18}$

C. $\frac{1}{3}$ D. 1

34. $\frac{11}{15}-\frac{1}{3}$

A. $\frac{2}{9}$ B. $\frac{2}{3}$ C. $\frac{5}{6}$ D. $\frac{2}{5}$

35. $11-2\frac{1}{5}$

A. $8\frac{4}{5}$ B. $9\frac{1}{5}$ C. $9\frac{4}{5}$ D. $10\frac{4}{5}$

36. $12\frac{2}{3}-\frac{3}{5}$

A. $12\frac{1}{2}$ B. $12\frac{1}{15}$ C. $11\frac{1}{15}$ D. $12\frac{1}{3}$

37. $16\frac{3}{8}-9\frac{5}{8}$

A. $6\frac{2}{4}$ B. $6\frac{3}{4}$ C. $25\frac{3}{4}$ D. $24\frac{3}{4}$

38. $16\frac{3}{5}-\frac{5}{7}$

A. $15\frac{31}{35}$ B. $16\frac{31}{35}$ C. 16 D. $16\frac{1}{6}$

Solve the problem below and write your answer in simplest form.

39. A carpenter had a board $27\frac{1}{4}$" long. He cut off $2\frac{5}{8}$". How long was the remaining board?

A. $24\frac{5}{8}$" B. $26\frac{5}{8}$"
C. $25\frac{5}{8}$" D. $25\frac{3}{4}$

40. Brian was training to run a marathon. During the three-day period before the race he decided that he would train for a total of 11 hours. If he trained for $2\frac{3}{5}$ hours on the first day and $2\frac{9}{10}$ hours on the second day, how many hours would he need to train on the third day?

A. $5\frac{4}{5}$ B. $5\frac{1}{2}$ C. $5\frac{3}{5}$ D. $6\frac{1}{5}$

Multiply and reduce to lowest terms.

41. $\frac{5}{12}\bullet\frac{1}{5}$

A. $\frac{1}{10}$ B. $\frac{6}{17}$ C. $\frac{5}{60}$ D. $\frac{1}{12}$

42. $7\bullet\frac{2}{3}$

A. $\frac{3}{14}$ B. $3\frac{2}{3}$ C. $10\frac{1}{2}$ D. $4\frac{2}{3}$

43. $3\frac{5}{8}\bullet\frac{4}{5}$

A. $1\frac{1}{2}$ B. $2\frac{9}{10}$ C. $1\frac{2}{3}$ D. $2\frac{3}{10}$

44. $5\frac{1}{2}\bullet 6$

A. $30\frac{1}{2}$ B. 33 C. 15 D. 30

Divide and reduce answers to lowest terms.

45. $\frac{2}{3}\div\frac{3}{5}$

A. $\frac{2}{5}$ B. $\frac{2}{3}$ C. $1\frac{1}{9}$ D. $1\frac{2}{3}$

46. $\frac{1}{2}\div 8$

A. $\frac{1}{16}$ B. 4
C. $\frac{1}{10}$ D. None of these

47. $23\div 4\frac{3}{5}$

A. $\frac{1}{5}$ B. 5
C. 10 D. 4

Solve the problem.

48. Mary needs to save $540 for a computer. It was used and the sales man told her he would sell it to her for $\frac{1}{3}$ off the marked price. What is the price of the computer be after the mark down?

A. $180 B. $360
C. None of these D. $510

49. A bag of chips is 24 ounces. A serving size is $\frac{3}{4}$ ounce. How many servings are in the bag of chips?
A. 18 servings B. $9\frac{1}{3}$
C. 32 servings D. $6\frac{3}{4}$

Write the decimal as a fraction or mixed number in lowest terms.

50. 1.02
A. $1\frac{1}{50}$ B. $1\frac{1}{5}$
C. $1\frac{1}{25}$ D. $\frac{3}{25}$

51. 1.26
A. $1\frac{13}{50}$ B. $\frac{13}{50}$
C. $\frac{13}{25}$ D. $\frac{13}{100}$

Write the number in decimal notation.

52. five and 3 hundredths
A. 5.003 B. 5.03
C. 5.3 D. .53

Write the decimal number in words.

53. 162.35
A. one hundred sixty-two and thirty-five tenths
B. one hundred sixty and two hundred thirty-five thousandths
C. one hundred sixty-two and thirty-five hundredths
D. one hundred sixty-two and thirty-five thousandths

Write the number in decimal notation.

54. A strand of hair is twenty two thousandths of an inch thick.
A. 0.22 inches B. 0.022 inches
C. 0.0022 inches D. 0.00022 inches

Identify the place value of the 8 in the decimal number below.

55. 24.638
A. Tenths B. Hundredths
C. Thousandths D. Ten-thousandths

Choose the answer with the correct sign between the pair of numbers.

56. 0.025 0.25
A. $0.025 < 0.25$ B. $0.025 > 0.25$
C. $0.025 = 0.25$

57. 62.233 62.23
A. $62.233 < 62.23$ B. $62.233 > 62.23$
C. $62.233 = 62.23$

Put the numbers below in order from the smallest to the largest.

58. 1.32, 1.032, 1. 302
A. 1.32, 1.032, 1.302
B. 1.032, 1.302, 1.32
C. 1.302, 1.32, 1.032
D. 1.32, 1.302, 1.032

Round the numbers below as indicated.

59. Round 9.459 to the nearest whole number.
A. 10 B. 9 C. 9.46 D. 9.5

60. Round 6.449 to the nearest tenth.
A. 6.45 B. 6 C. 6.5 D. 6.4

Round to the indicated place.

61. The stock marked fell by 2.345% last month. Round this to the nearest tenth of a percent.
A. 2.3% B. 2.34%
C. 2% D. 2.35%

62. The median income last year in this state was \$25,347.22. Round this to the nearest thousand dollars.
A. \$25, 347 B. \$25, 350.00
C. \$25,000 D. \$26,000

Write the ratio as a fraction in simplest form.

63. 12 to 16

A. $\frac{6}{8}$ B. $\frac{8}{6}$ C. $\frac{3}{4}$ D. $\frac{4}{3}$

In each of the problems below change the percent to an equivalent fraction or mixed number.

64. 25%

A. 4 B. $\frac{1}{4}$ C. $\frac{3}{4}$ D. $\frac{4}{100}$

65. 125%

A. $1\frac{1}{4}$ B. $12\frac{1}{4}$ C. $\frac{1}{8}$ D. $\frac{125}{1000}$

66. $\frac{1}{10}\%$

A. $\frac{1}{10}$ B. $\frac{1}{100}$

C. $\frac{1}{1000}$ D. $\frac{1}{10000}$

Solve each percent problem below.

67. Find 40% of 700.

A. 2.8 B. 28

C. 280 D. 2800

68. Find .25% of 200.

A. .5 B. 5

C. 50 D. 500

69. Find 150% of $2500.

A. $375 B. $3750

C. $37500 D. $375000

70. Find $3\frac{1}{2}\%$ of $36,000.

A. $126 B. $126000

C. $1260 D. $12600

Find the percent of increase or decrease in the problem below.

71. A surfer purchased a new surf board for $264. The board was originally $330. What was the percent of change?

A. 55% B. 20%

C. 25% D. 30%

72. A crafter wants to make 20% profit on the items he makes. If the cost of materials is $1.20, what should the items sell for to make a 20% profit?

A. $1.44 B. $1.00

C. $1.24 D. $2.40

Find the mean of the set of numbers.

73. Your test scores are 78, 89, 76, 50, 82, and 69. Round your answer to the nearest whole number if necessary.

A. 74 B. 76

C. 69 D. 72

Use the tables to solve the following problems.

74.

Dog	Weight (pounds)
Husky	95
St. Bernard	145
Cocker Spaniel	55
Yorkie	3.5

About how many times heavier is the largest dog when compared with the smallest dog?

A. 3 B. 41

C. 2 D. 27

Change the given quantity to the indicated unit.

75. 360 min = _____ hours
A. 21600 B. 36 C. 6 D. 2

76. 180 in = ___ ft
A. 60 B. 1.25 C. 540 D. 15

77. The following table is used to determine the minimum payment on a credit card bill.

Balance	$0-25	$25.01-250	$250.01-1000	$1000.01 up
Min. Payment	Full Balance	$25	10% of balance	$100 + 5% of balance greater than $1000

What is the minimum payment if you owe $300?

A. $300 B. $45 C. $25 D. $30

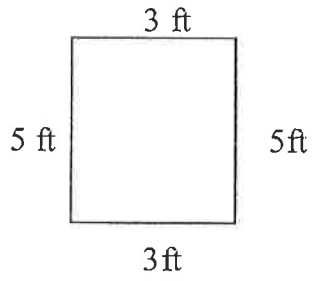
Find the square root of each of the problems below.

78. $\sqrt{64}$
A. 16 B. 9 C. 32 D. 8

79. $\sqrt{121}$
A. 121 B. 60.5 C. 11 D. 12

Find the perimeter of the figure below.

80.



A. 16 ft B. 8 ft
C. 9 ft D. 25 ft

Solutions:

1. D	2. D	3. D	4. B	5. A	6. D	7. C
8. C	9. B	10.B	11.A	12.A	13.D	14.B
15.A	16. B	17.A	18.D	19.C	20.B	21.A
22.B	23. A	24.B	25.B	26.C	27.A	28.D
29.C	30. D	31.A	32.A	33.B	34.D	35.A
36.B	37. B	38.A	39.A	40.B	41.D	42.D
43.B	44. B	45.C	46.A	47.B	48.B	49.C
50.A	51. A	52.B	53.C	54.B	55.C	56.A
57.B	58. B	59.B	60.D	61.A	62.C	63.C
64.B	65. A	66.C	67.C	68.A	69.B	70.C
71.B	72. A	73 A	74.B	75.C	76.D	77.D
78.D	79. C	80.A				

Pre Algebra Practice

1. What is the perimeter of a rectangle that has a length of 9 cm and a width of 6 cm?
   A. 54 sq. cm B. 54 cm
   C. 30 cm D. 30 sq. cm

2. What is the area of a square that has a side length of 15 centimeters?
   A. 225 cm B. 225 sq. cm
   C. 60 sq. cm D. 60 cm

3. What is the area of a triangle that has a base of 9 inches and a height of 10 inches?
   A. 45 in B. 45 sq in
   C. 90 in D. 90 sq in

4. Use order of operations to simplify: $(10 - 4 \cdot 2)^3 - 3$
   A. 1725 B. 30
   C. 3 D. 5

5. Use order of operations to simplify: $-3 \cdot 2 - (-4)^2 + 2$
   A. 102 B. 16
   C. 12 D. -20

6. Use order of operations to simplify: $15 - [4 - 3(2 - 4)]$
   A. 13 B. 1
   C. 5 D. 17

7. Simplify: $|-9| - (-2)$
   A. -11 B. -7
   C. 7 D. 11

8. Simplify: $-4 + |6 - 8|$
   A. -10 B. 10
   C. -2 D. -6

9. Simplify: $-4 - 5x^8y + 6xy - 8x^8y + xy - 7$
   A. $-13x^{16}y^2 - 7xy + 11$
   B. $-13x^8y + 7xy - 11$
   C. $3x^8 + 5x^2y^2 + 11$
   D. $3x^8y + 5xy - 11$

10. Simplify: $-\frac{3}{5}x + \frac{1}{2}x$
    A. $-\frac{1}{10}x$ B. $\frac{2}{3}x$
    C. $-\frac{3}{10}x$ D. $\frac{1}{10}x^2$

11. Simplify: $(0.24x)(1.2z)$
    A. $2.88xz$ B. $0.288\,xz$
    C. $1.44xz$ D. $1.44 + xz$

12. Evaluate the following expression for $x = 3$ and $y = 4$: $x^2 + y^2$
    A. -2 B. 14
    C. -7 D. 25

13. Evaluate the following expression for $x = \frac{2}{3}$ and $y = \frac{1}{2}$: $(x - y)(x + y)$
    A. $\frac{7}{36}$ B. $\frac{4}{3}$
    C. $\frac{3}{5}$ D. $\frac{1}{9}$

14. Evaluate the following expression for $x = 0.2$ and $y = 3.4$: $x(y^2 - 4)$
    A 223.2 B. 1.512
    C. 0.56 D. 2.304

15. Solve for x: $\frac{5}{12}x - 25 = 0$

A. $x = -\frac{125}{12}$ B. $x = 60$

C. $x = -60$ D. $\frac{125}{12}$

16. Solve for x: $-x + 3 = 7x + 8$

A. $x = -\frac{5}{8}$ B. $x = \frac{6}{5}$

C. $x = \frac{1}{3}$ D. $x = \frac{6}{11}$

17. Solve for x: $5(3 - 4x) = 7 - (4 - x)$

A. $x = 3$ B. $x = -\frac{18}{5}$

C. $x = \frac{4}{7}$ D. $x = -\frac{19}{8}$

18. Solve for y: $\frac{3}{4} + y = \frac{5}{3}$

A. $y = \frac{20}{9}$ B. $y = -2$

C. $y = \frac{11}{12}$ D. $y = \frac{29}{12}$

19. Solve for z: $\frac{6}{5}z = \frac{4}{7}$

A. $z = -\frac{22}{35}$ B. $z = \frac{62}{35}$

C. $z = \frac{24}{35}$ D. $z = \frac{10}{21}$

20. Solve for z: $5.6 = 0.02z + 7.38$

A. $z = 0.2596$ B. $z = 649$

C. $z = 0.0356$ D. $z = -89$

21. Solve for x: $\frac{x}{0.08} = 5.8$

A. $x = 5.72$ B. $x = 5.88$

C. $x = 72.5$ D. $x = 0.464$

22. The formula for the perimeter of a rectangle is: $P = 2L + 2W$
Solve for W when $P = 23$ and $L = 7$.

A. $W = 4.5$ B. $W = 2$

C. $W = 18.5$ D. $W = 18$

23. Best Buy is selling a television for $1250.00. Sales tax in Duval County is 6%. Using P as the amount I will have to pay for the television (including sales tax),write an algebraic equation that describes this transaction.

A. $P = (0.06)(1250)$
B. $P = 1250 \div 0.06$
C. $P = 1250 + (0.06)(1250)$
D. $P = 1250(0.94)$

24. Jeremy put $1250 into his savings account, which pays 5% per year simple interest and left it there for 3 years. Using A as the total amount that will be in the bank at the end of the 3 years, write an algebraic equation that describes this transaction.

A. $A = 1230 + 1250(0.05)(3)$
B. $A = 1250(0.05)(3)$
C. $A = 1250 - 1250(0.05)(3)$
D. $A = 1250 + (0.05)(3)$

25. Keisha is investing her money in an IRA. Initially she will be putting in $775. Using C as the additional amount invested each month, translate this problem into an algebraic expression that will show how much Keisha invested for the entire year.

A. $775 + C$ B. $775 - 12C$

C. $775C$ D. $775 + 12C$

26. Multiply and simplify where possible:
$3x(7x-4)$
A. $21x^2-4$ B. $21x^2-12$
C. $9x^2$ D. $21x^2-12x$

27. Multiply and simplify where possible:
$4x(2y+3z-12)$
A. $6xy+12xz-48$
B. $8xy+12xz-48x$
C. $8x^2y^2+12x^2z^2+48$
D. $8xy+12xz-12$

28. Multiply and simplify where possible:
$xy(6x^2-3y^3z)$
A. $6x^3y-3xy^4z$
B. $7x^3y-2xy^4z$
C. $6x^2y-xy^3z$
D. $3x^3y^4z$

29. Multiply and simplify where possible:
$(5x-2)(6x+3)$
A. $30x^2-6$
B. $30x^2+3x-6$
C. $11x^2-5$
D. $30x^2+3x+5$

30. Multiply and simplify where possible:
$(z+\frac{3}{4})(z-\frac{3}{4})$
A. $z^2-\frac{3}{4}$ B. $2z$
C. $z^2-\frac{2}{3}$ D. $z^2-\frac{9}{16}$

31. Multiply and simplify where possible:
A. $16x^2-4z^2$
B. $8x^2+4z^2$
C. $16x^2+16xz-4z^2$
D. $8x^2+4z^2$

32. Simplify: $(6x^2-3x-7)+(3x^2+5)$
A. $3x^2-3x-2$
B. $9x^2-3x-12$
C. $9x^2-3x-2$
D. $9x^2-3x+12$

33. Simplify: $(z^2-3z+1)-(7z^2-8z+5)$
A. $-6z^2-11z+6$
B. $-6z^2+5z-4$
C. $-6z^2-11z-4$
D. $-7z^2+5z-4$

34. Simplify: $(z^2+3)+(4z-7)-(5z^2+z-9)$
A. $-4z^2+5z+5$
B. $-4z^2+3z+5$
C. $-4z^2+5z-13$
D. $-6z^2+3z-13$

Solutions:

1. C	2. B	3. B	4. D	5. D	6. C	7. D
8. C	9. B	10.A	11.B	12.D	13.A	14.B
15.B	16.A	17.C	18. C	19.D	20.D	21.D
22.A	23.C	24.A	25. D	26.D	27.B	28.A
29.B	30.D	31.A	32. C	33.B	34.B	

Section 1 Sample Problems

1. Simplify: $2\sqrt{18a^2x^5}$

   A. $36ax^2\sqrt{x}$ B. $18a^2x^4\sqrt{2x}$
   C. $18ax^2\sqrt{2x}$ D. $6ax^2\sqrt{2x}$

2. Simplify: $6\sqrt{5}+\sqrt{6}-2\sqrt{5}$
   A. $4\sqrt{10}+\sqrt{6}$ B. $4\sqrt{5}+\sqrt{6}$
   C. $5\sqrt{16}$ D. $5\sqrt{6}$

3. Find the greatest common factor.
   $6a^2b^2+18ab^3$
   A. $6a^2b^3$ B. $3ab^2$
   C. $6ab$ D. $6ab^2$

4. Factor x^2-y^2.
   A. $xy(x-y)$ B. $(x-y)(x-y)$
   C. $(x+y)(x-y)$ D. not factorable

5. Factor the trinomial $2a^2+3a+1$
   A. $(2a+1)(a+1)$ B. $(a+1)(a+3)$
   C. $(2a+1)(3a+1)$ D. $2(a+1)(a+1)$

6. Simplify: $\frac{x^2y^3}{x^{-3}y^5}$

   A. $\frac{x^5}{y^2}$ B. $\frac{y^2}{x^5}$
   C. $\frac{x^6}{y^2}$ D. xy^3

7. Simplify: $(5x^3y^0)^{-2}$
   A. $\frac{1}{25x^6}$ B. $\frac{25}{x^5y^2}$
   C. $10x^6$ D. $-10x^{-6}$

8. Find the x and y intercepts and the slope of the given line: $2x+3y=12$.
   A. $(6,0),(0,4),\frac{-2}{3}$ B. $(4,0),(0,6),\frac{3}{2}$
   C. $(6,0),(0,4),\frac{3}{2}$ D. $(4,0),(0,6),\frac{-2}{3}$

9. To graph $y=-2x+3$ you would begin at the y intercept which is:
   A. -2 B. $+3$
   C. -6 D. 0

10. Solve for x: $\frac{3}{4}x-5=3$
    A. $x=\frac{8}{3}$ B. $x=\frac{3}{32}$
    C. $x=\frac{32}{3}$ D. $x=-\frac{3}{2}$

11. Solve for x: $ax+by=c$
    A. $\frac{a}{c-by}$ B. $\frac{by-c}{a}$
    C. $\frac{c-by}{a}$ D. $\frac{c-by}{a}$

12. Solve for x: $4x^2+4x-35=0$
    A. $x=-\frac{7}{2},x=-\frac{5}{2}$
    B. $x=-\frac{7}{2},x=\frac{5}{2}$
    C. $x=\frac{7}{2},x=\frac{5}{2}$
    D. $x=\frac{7}{2},x=-\frac{5}{2}$

13. Solve for x: $5x-8<11x-2$
    A. $x<1$ B. $x>1$
    C. $x>-1$ D. $x<-1$

Solutions Section 1 Sample Problems:

1. D	2. B	3. D	4. C	5. A	6. A	7. A
8. A	9. B	10.C	11.C	12.B	13.C	

Sample Problems Using Radicals

Simplify each problem

1. $\sqrt{12x^2}$
2. $\sqrt{20a^5}\cdot 2a^2\sqrt{5a}$
3. $3\sqrt{6}\cdot\sqrt{6}$
4. $\sqrt{3n}\cdot\sqrt{24n}$
5. $\sqrt{3x}\cdot\sqrt{51x^3}$
6. $\sqrt{45a^7}\cdot\sqrt{20a}$
7. $2\sqrt{12}-7\sqrt{3}$
8. ~~$\sqrt{3}$~~
9. $4\sqrt{5}-2\sqrt{45}$
10. $\sqrt{40a^3b^4}$
11. $\sqrt{12}+\sqrt{48}-\sqrt{27}$
12. $(\sqrt{11}-\sqrt{2})^2$
13. $k\sqrt{7x^2}+4x\sqrt{63k^2}$
14. $\sqrt{3}(\sqrt{7}+\sqrt{2})$
15. $2\sqrt{5r}(\sqrt{3r}+8\sqrt{2h})$

Solutions:

1. $2x\sqrt{3}$	2. $20a^5$	3. 18	4. $6n\sqrt{2}$	5. $3x^2\sqrt{17}$
6. $30a^4$	7. $-3\sqrt{3}$	8. ~~$9\sqrt{3}$~~	9. $-2\sqrt{5}$	10. $2ab^2\sqrt{10a}$
11. $3\sqrt{3}$	12. $13-2\sqrt{22}$	13. $13kx\sqrt{7}$	14. $\sqrt{21}+\sqrt{6}$	15. $2r\sqrt{15}+16\sqrt{10hr}$

Sample problems using factoring

If necessary find the greatest common factor and then factor completely.

1. $12cd^3-8c^2d^2+10c^5d^3$
2. y^2-5y+4
3. x^2-6x+9
4. $3m^2-3n^2$
5. $6c^2+13c+6$
6. $2b^2+13b-7$

Solutions:

1. $2cd^2(6d-4c+5c^4d)$
2. $(y-1)(y-4)$
3. $(x-3)(x-3)$
4. $3(m-n)(m+n)$
5. $(2c+3)(3c+2)$
6. $(2b-1)(b+7)$

Sample problems simplifying rational expressions

Factor and reduce each expression to lowest terms.

1. $\frac{30bc}{12b^2}$ 2. $\frac{5t-5}{t^2-1}$ 3. $\frac{y^2+4y+4}{3y^2+5y-2}$ 4. $\frac{a^2+2a+1}{2a^2+3a+1}$

Solutions:

1. $\frac{5c}{2b}$ 2. $\frac{5}{t+1}$ 3. $\frac{y+2}{3y-1}$ 4. $\frac{a+1}{2a+1}$

Sample problems multiplying and dividing rational expressions

1. $\frac{3xyz}{4xz} \cdot \frac{6x^2}{3y^2}$ 2. $\frac{3}{5d} \div \frac{-9}{15df}$

3. $\frac{4t^2-4}{7(t^2+2t+1)} \cdot \frac{3t+3}{2t-2}$ 4. $\frac{5x^2+10x-75}{4x^2-24x-28} \cdot \frac{2x^2-10x-28}{x^2+7x+10}$

5. $\frac{a^2+2a-15}{a-3} \div \frac{a^2-4}{2}$

Solutions:

1. $\frac{3x^2}{2y}$ 2. $-f$ 3. $\frac{2}{3}$ 4. $\frac{5(x-3)}{2(x+1)}$ 5. $\frac{2(a+5)}{(a-2)(a+2)}$

Sample problems adding and subtracting rational expressions

1. $\frac{6}{ab}+\frac{8}{a}$ 2. $\frac{m}{m^2-4}+\frac{2}{3m+6}$ 3. $\frac{1}{h^2-9h+20}-\frac{5}{h^2-10h+25}$

4. $\frac{y+1}{y-1}+\frac{y+2}{y-2}+\frac{y}{y^2-3y+2}$ 5. $\frac{d-4}{d^2+2d-8}-\frac{d+2}{d^2-16}$

Solutions:

1. $\frac{6+8b}{ab}$ 2. $\frac{5m-4}{3(m-2)(m+2)}$ 3. $\frac{-4h+15}{(h-4)(h-5)^2}$

4. $\frac{2y^2+y-4}{(y-2)(y-1)}$ 5. $\frac{-8d+20}{(d-4)(d-2)(d+4)}$

Sample problems graphing linear equations

1. Give the slope and y intercept of the line determined by the equation $y = 2x - 3$.
2. Give the slope and y intercept of the graph for the equation. $y=-\frac{1}{2}x+\frac{2}{3}$
3. Give the x and y intercepts for the line determined by the equation $-6x + 5y = 2$
4. Graph the equation $y = -2x + 4$ use an x,y coordinate grid.
5. Graph the equation $y=-\frac{3}{2}x-4$ use an x,y coordinate grid.
6. Graph the equation $3x - 2y = 6$ use an x,y coordinate grid.

Solutions:

1. Slope 2 and y intercept – 3

2. Slope $-\frac{1}{2}$ and y intercept $\frac{2}{3}$

3. x intercept $-\frac{1}{3}$. Solve for x when y = 0 and you get $-\frac{1}{3}$.
   Y intercept $\frac{2}{5}$ Solve for y when x = 0 and you get $\frac{2}{5}$.

4. To graph $y = -2x + 4$, begin at the y intercept 4 then count the slope -2 which would be down 2 units and right one unit because all whole numbers have a denominator of 1. Place a point here and connect with the y intercept.

5. To graph $y=-\frac{3}{2}x-4$, begin at the y intercept – 4 then count the slope $-\frac{3}{2}$ which would be down 3 units and right 2 units. Place a point here and connect with the y intercept.

6. Use the intercepts to graph this equation. The x intercept is 2 and the y intercept is – 3. Connect the intercepts with a line

Sample problems solving quadratic equations

Sample problems involving only a squared variable term.

1. $2x^2 = 8$ 2. $(x+3)^2 = 144$ 3. $x^2 = 46$

Solutions:

1. ± 2 2. $9, -15$ 3. ± 6.78

Sample problems that can be solved by factoring:

1. $x^2 - 4x - 21 = 0$
2. $x^2 - 4x = 32$
3. $x^2 - 6x - 55 = 0$

Solutions:

1. x = 7 or x = – 3
2. x = 8 or x = – 4
3. x = – 5 or x = 11

Sample problems that can be solved using the quadratic formula. Write your answers in set notation.

1. $x^2 + 15x + 54 = 0$
2. $x^2 + 4x = 2$
3. $2x^2 - 11x + 15 = 0$

Solutions:

1. {-9, -6}
2. {0.45, -4.45}
3. {6,5}

Practice for Intermediate Algebra

1. Solve for x: $2 < 3x - 5 < 4$

A. $\frac{7}{3} < x < 3$ B. $-1 < x < -2$

C. $-\frac{7}{3} < x < 3$ D. $-3 < x < \frac{7}{3}$

2. Solve the system of equations:
$2a + b = 5$
$a - b = 1$

A. (–2,1) B. (2,1)
C. (2,–1) D. (–2,–1)

3. Solve the system of equations:
$3x + 5y = 3$
$x = 8 - 4y$

A. (–4,3) B. (3,–4)
C. (4,3) D. (–3,–4)

4. Solve the system of equations:
$6x + 7y = 9$
$8x + 9y = 11$

A. (2,3) B. (–2,–3)
C. (3,–2) D. (–2,3)

5. Simplify: $\frac{x^2 + 9x + 8}{x^2 - 3x - 4}$

A. $\frac{x+1}{x-4}$ B. $\frac{x+8}{x+1}$

C. $\frac{x+8}{x-4}$ D. $\frac{x-8}{x+4}$

6. Simplify:
$\frac{y^2 + 10y + 25}{y^2 - 9} \bullet \frac{y^2 + 3y}{y+5}$

A. $\frac{y(y+5)}{y+3}$ B. $\frac{y(y+5)}{y-3}$

C. $\frac{y+5}{y-3}$ D. $\frac{y^2 - 5y}{y+3}$

7. Add and simplify: $\frac{9}{x+1} + \frac{3}{x}$

A. $\frac{12x+3}{x(x+1)}$ B. $\frac{12}{x(x+1)}$

C. $\frac{12}{2x+1}$ D. $\frac{15}{x+1}$

8. Simplify:
$\frac{x^2 - x}{x^2 - 3x + 2} \div \frac{x^2 - 1}{x^2 - 2x + 1}$

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

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

9. Simplify:
$\frac{x}{x^2 + 9x + 20} - \frac{4}{x^2 + 7x + 12}$

A. $\frac{(x+5)(x+3)}{x-5}$ B. $\frac{x+5}{(x-5)(x-3)}$

C. $\frac{x-5}{(x+5)(x+3)}$ D. $\frac{x-5}{(x+3)(x+4)(x+5)}$

10. Solve: $\frac{x-1}{x^2-2x-3}+\frac{x+2}{x^2-9}=\frac{2x+5}{x^2+4x+3}$

A. $x=-\frac{7}{3}$ B. $x=\frac{3}{7}$

C. $x=-\frac{3}{7}$ D. $x=\frac{7}{3}$

11. If $f(x)=4x^2-x+3$, find $f(-2)$.

A.17 B. 21

C.– 11 D. – 15

12. If $f(x)=-2x^3+5$, find x if $f(x)=-49$

A. 2 B. 3

C. 4 D. – 2

13. Given $f(x)=3x^2-2x$, find $f(a+1)$

A. $3a^2-2a+1$ B. $3a^2+4a+1$

C. $3a^2-2a+2$ D. $3a^2-4a+4$

14. Simplify (put in rationalized form):

$\frac{3}{\sqrt{5}}$

A. $\frac{3\sqrt{5}}{5}$ B. $\frac{\sqrt{5}}{3}$

C. 15 D. $\sqrt{15}$

15. Simplify (put in rationalized form):

$\frac{8}{\sqrt{x}+2}$

A. $4\sqrt{x}$ B. $\frac{\sqrt{x}}{16}$

C. $\frac{8\sqrt{x}-16}{x-4}$ D. $\frac{8x-16}{x+4}$

16. Write a linear equation in standard form that goes through the points (4,–3) and (–2,9):

A. $x-y=-5$

B. $y=2x-5$

C. $2x+y=5$

D. $2x-y=5$

17. Write a linear equation in slope-intercept form that is perpendicular to $y=3x-4$ and crosses (3,6).

A. $y=-\frac{1}{3}x+7$

B. $y+\frac{1}{3}x=7$

C. $x+3y=21$

D. $x=-3y+21$

Solutions:

1. a	2. b	3. a	4. d	5. c	6. b
7. a	8. d	9. c	10. a	11. b	12. b
13. b	14. a	15. c	16. c	17. a	

Graduation: Algebra 1 EOC

Before graduation, all students must pass an **Algebra 1 EOC** *(End of Course)* exam either in Florida or one of the states listed below. This test requirement is in addition to earning an Algebra 1 credit.

The second week of school, juniors and seniors who register over the summer and have not passed an Algebra 1 EOC exam will take a **PERT** *(Postsecondary Education Readiness Test)* exam which provides immediate results. Students who pass with a score of 97 or higher will meet the state Algebra EOC exam graduation requirement. Students who do not pass will have multiple opportunities throughout the year to retake the PERT and the state's FSA Algebra 1 EOC exam.

Please use the attached review material to prepare for the PERT and/or the FSA Algebra 1 EOC.

States with equivalent Algebra EOC exams

AR Arkansas	**MD** Maryland	**NC** North Carolina	**TN** Tennessee
DE Delaware	**MS** Mississippi	**OK** Oklahoma	**TX** Texas
GA Georgia	**MO** Missouri	**PA** Pennsylvania	**UT** Utah
IN Indiana	**MT** Montana	**SC** South Carolina	**VA** Virginia
LA Louisiana	**NY** New York	**SD** South Dakota	**WA** Washington

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Florida's Postsecondary Education Readiness Test

P.E.R.T.

October 18, 2013

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Introduction to the P.E.R.T

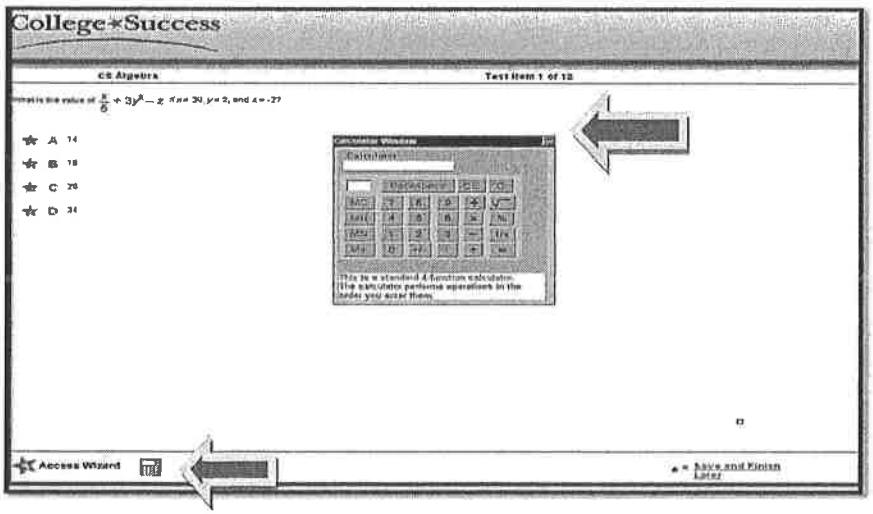
The purpose of Florida's Postsecondary Education Readiness Test (P.E.R.T.) is to adequately assess your academic skills in mathematics, reading and writing through the delivery of three tests, one for each of these areas. The results of these tests are used to determine your placement into appropriate courses at your college.

You cannot pass or fail the P.E.R.T. – it is only used to determine which courses are best for you. While it doesn't impact your grades, we encourage you to take the P.E.R.T. seriously so that your course placement is accurate.

How the P.E.R.T. Works

The P.E.R.T. assessments are computer-adaptive, which means the questions are chosen based on your answers to previous questions. You will not be permitted to change your answer once you have moved on to the next question or leave a question unanswered. However, all of the P.E.R.T. assessments are untimed so you have as much time as you need to consider each question before submitting your answer. If you do not know the answer to a specific question, you are encouraged to try and answer the question by eliminating one or more of the answer options and then select from the remaining choices.

You will not be allowed to bring a calculator with you; however, for certain questions, a calculator icon will be available in the bottom left corner of the test for your use. Once the calculator icon has been clicked on, the electronic calculator will appear as a pop-up in the middle of your screen. You must use the electronic calculator keyboard to input numbers. It is a standard 4-function calculator and performs operations in the order you enter them.



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Check with your college testing center for what to bring or not to bring with you on test day.

Your scores on each assessment will be available immediately after you submit and your college will provide you with the results.

P.E.R.T Test-Taking Tips

- **Prepare**
  Take practice exams and study areas of weakness.
- **Read the directions carefully**
  When you take the tests, make sure to take your time and carefully follow the instructions for each question.
- **Use reasoning when answering**
  1. Identify the key phrase in the question.
  2. Try to find the correct answer before you read all the choices.
  3. Eliminate the choices that you know are not correct.
  4. Read all the choices and pick the best answer.
- **Review**
  Be sure to review each answer carefully before submitting. You will not be able to go back to any questions.

P.E.R.T. Subject Area Tests

There are three P.E.R.T. tests, each with 30 questions. The content that is covered is listed below by subject:

Mathematics:

- Equations–solving linear equations, linear inequalities, quadratic equations and literal equations
- Evaluating algebraic expressions
- Polynomials–factoring, simplifying, adding, subtracting, multiplying, and dividing
- Dividing by monomials and binomials
- Applying standard algorithms or concepts
- Coordinate planes–translate between lines and inspect equations
- Focusing on pairs of simultaneous linear equations in two variables

Reading:

- Discerning and summarizing the most important ideas, events, or information
- Supporting or challenging assertions about the text
- Determining the meaning of words and phrases in context
- Analyzing the meaning, word choices, tone, and organizational structure of the text

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- Determining the author's purpose, and the relation of events in the text to one another
- Recognizing relationships within and between sentences
- Analyzing the traits, motivations, and thoughts of individuals in fiction and nonfiction
- Analyzing how two or more texts with different styles, points of view, or arguments address similar topics or themes
- Distinguishing between facts and opinions
- Evaluating reasoning and rhetoric of an argument or explanation

Writing:

- Sustaining focus on a specific topic or argument
- Establishing a topic or thesis
- Demonstrating use of the conventions of standard written English, including grammar, usage, and mechanics
- Supporting and illustrating arguments and explanations
- Developing and maintaining a style and tone
- Synthesizing information from multiple relevant sources
- Conveying complex information clearly and coherently
- Representing and accurately citing data, conclusions, and opinions of others
- Establishing a substantive claim and acknowledging competing arguments or information
- Conceptual and Organizational Skills - recognizing effective transitional devices within the context of a passage
- Word Choice Skills - recognizing commonly confused or misused words and phrases
- Sentence Structure Skills - using modifiers correctly, using coordination and subordination effectively, recognizing parallel structure
- Grammar, Spelling, Capitalization, Punctuation Skills - avoiding inappropriate shifts in verb tense and pronouns; maintaining agreement between pronoun and antecedent; and using proper case forms, adjectives, and adverbs

What should you expect?

The following section provides an overview of the type of information you will need to know to perform well on the subject area tests but it is not intended to be a comprehensive listing of all content to be covered.

Mathematics:

You should review your basic math rules such as, the order of operations, exponents, prime numbers and percents. Here are a few of the rules to review:

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Order of Operations

- work within parentheses
- simplify exponents
- multiplication and division
- addition and subtraction

Exponents

The mathematical notation that notates a variable is multiplied by itself the number of times indicated by the exponent.

- $x^3 = x \times x \times x$
- $x^5 = x \times x \times x \times x \times x$

Prime Numbers

A prime number is defined as an integer that is greater than 1, and has only two positive factors, 1 and itself. The first ten prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, and 29.

Percents

The word percent means "hundredths" or a number which is divided by 100.
Converting a number into a percentage involves multiplying the number by 100.
A percent can be determined by performing the division of the part by the total and multiplying it by 100:

$$\text{Percent} = \frac{\text{Part}}{\text{Total}} \times 100$$

Math Sample Questions:

1. Which of the following is a solution to the equation $c + (4 - 3c) - 2 = 0$?

A. -1
B. 0
C. 1
D. 2

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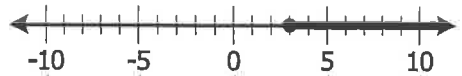
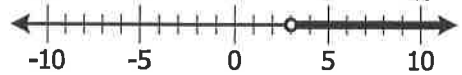
2. Graph the solution of $y - 2 > 1$ on a number line.

A.


B.


C.


D.


3. Which of the following is a solution to the equation $x^2 - 6x + 5 = 0$?

A. $x = -5$
B. $x = -1$
C. $x = \frac{1}{5}$
D. $x = 5$

4. What is the value of the algebraic expression if $x = \frac{1}{2}$, $y = -1$, and $z = 2$?

$6x(y^2z)$

A. -12
B. -6
C. 1
D. 6

5. Which of the following is equivalent to $(8 - 5) \div 2^3$?

A. $\frac{3}{8}$
B. $\frac{19}{8}$
C. $\frac{27}{8}$
D. $\frac{1}{125}$

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6. Factor completely:

$x^2 - x - 6$?

A. $(x-2)(x+3)$
B. $(x-1)(x-6)$
C. $(x+2)(x-3)$
D. $(x+1)(x-6)$

7. Simplify the following expression:

$$\frac{3x^4y^2}{xy^2}$$

A. $3x^3$

B. $3x^2y$

C. $3x^4y$

D. $\frac{3x^3y}{xy}$

8. Which of the following is equivalent to the expression $(3ab)(-5ab)$?

A. $-2ab$
B. $-2a^2b^2$
C. $-15ab$
D. $-15a^2b^2$

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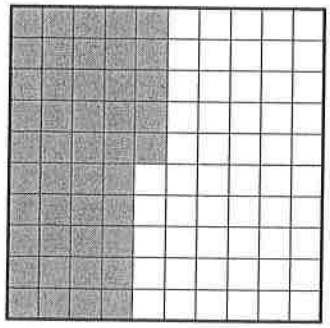
9. What percent of the grid is shaded?



A. 35%
B. 40%
C. 45%
D. 55%

10. Which of the following is the equation of a line that passes through (-2, -1) and (-4, -3)?

A. $y = \frac{1}{2}x + 1$

B. $y = x + 1$
C. $y = \frac{1}{2}x - 1$

D. $y = x - 1$

Reading:

Read each passage carefully. Since the test is not timed, take as much time as you need to read each passage. Each passage may have one or more than questions associated with it. It is also important to focus on the opening and ending sentences of each paragraph to help with capturing the main idea of each paragraph. Another strategy is to look for keywords or key phrases within the passage to help find the answer to questions regarding the author's feelings or meaning of the passage.

Reading Sample Questions:

Read the selection and answer the questions that follow.

A Born Artist

Benjamin West was born in a small town near Philadelphia, Pennsylvania, in 1738. Soon after Benjamin's birth, the family minister paid a visit. "This boy will do great

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Answer keys:

Math:

Sequence	Competency Description	Key
1	Solve linear equations in one variable using manipulations guided by the rules of arithmetic and the properties of equality.	C
2	Solve linear inequalities in one variable and graph the solution set on a number line.	B
3	Solve quadratic equations in one variable by factoring.	D
4	Evaluates algebraic expressions.	D
5	Applies the order-of-operations to evaluate algebraic expressions, including those with parentheses and exponents.	A
6	Factor polynomial expressions.	C
7	Simplifies an expression with integer exponents.	A
8	Add, subtract, multiply, and divide polynomials. Division by monomials and binomials.	D
9	Know when and how to apply standard algorithms or concepts, and perform them flexibly, accurately and efficiently.	C
10	Translate fluently between lines in the coordinate plane and their equations. Include predicting visual features of lines by inspection of their equations, determining the equation of the line through two given points, and determining the equation of the line with a given slope passing through a given point.	B