College Algebra Placement Test Practice/ Basic Skills Test   Name_____

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

Evaluate the algebraic expression for the given value or values of the variable(s).

1) $\dfrac{y - 9x}{6x + xy}$; $x = -4$ and $y = 2$ 1) _____

    A) $-\dfrac{1}{2}$ B) $-\dfrac{19}{16}$ C) $\dfrac{17}{16}$ D) $\dfrac{17}{8}$

Rewrite the expression without absolute value bars.

2) $|8 + (-10)|$ 2) _____

    A) 18   B) -18   C) 2   D) -2

Simplify the algebraic expression.

3) $-3(2x - 7) - 4x + 10$ 3) _____

    A) $10x + 31$ B) $-10x - 11$ C) $2x + 31$ D) $-10x + 31$

4) $-2(4r + 5) + 9(5r + 7)$ 4) _____

    A) $37r + 5$ B) $-18r$ C) $37r + 53$ D) $2r + 3$

Simplify the exponential expression.

5) $(-8x^5y)(-8x^4y^6)$ 5) _____

    A) $64x^9y^7$ B) $-64x^9y^6$ C) $64x^{20}y^6$ D) $-16x^9y^6$

6) $\dfrac{-12x^{12}}{3x^6}$ 6) _____

    A) x^5 B) $-4x^5$ C) x^6 D) $-4x^6$

7) $(-5x^4y^{-5})(2x^{-1}y)$ 7) _____

    A) $-10x^3y^6$ B) $\dfrac{-10x^5}{y^6}$ C) $\dfrac{-10x^3}{y^4}$ D) $\dfrac{-3x^3}{y^4}$

Simplify the rational expression. Find all numbers that must be excluded from the domain of the simplified rational expression.

8) $\dfrac{x^2 + 11x + 18}{x^2 + 16x + 63}$ 8) _____

    A) $\dfrac{11x + 18}{16x + 63}, x \neq -\dfrac{63}{16}$ B) $\dfrac{x + 2}{x + 7}, x \neq -7, -9$

    C) $-\dfrac{x^2 + 11x + 18}{x^2 + 16x + 63}, x \neq -7, -9$ D) $\dfrac{11x + 2}{16x + 7}, x \neq -\dfrac{7}{16}$

Solve the linear equation.

9) $10s + 4 = 9s + 7$ 9) _____

    A) {11}   B) {-11}   C) {-3}   D) {3}

10) $\dfrac{x}{4} = \dfrac{x}{7} + 8$ 10) _____
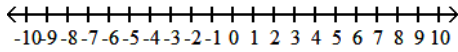
A) {56}   B) {28}   C) $\left\{\dfrac{224}{3}\right\}$ D) {32}

Solve the linear inequality. Other than ∅, use interval notation to express the solution set and graph the solution set on a number line.
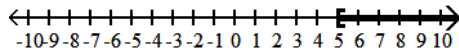
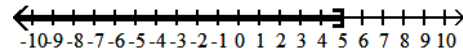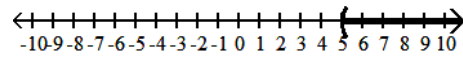11) $2x + 1 < 11$ 11) _____

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-10-9-8-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 8 9 10

A) $[5, \infty)$ B) $(-\infty, 5]$

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-10-9-8-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 8 9 10

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-10-9-8-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 8 9 10

C) $(-\infty, 5)$ D) $(5, \infty)$

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-10-9-8-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 8 9 10

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-10-9-8-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 8 9 10

Given functions f and g, perform the indicated operations.

12) $f(x) = 6 - 5x$, $g(x) = -3x + 5$ 12) _____
    Find $f + g$.
    A) $-3x + 6$ B) $3x$ C) $-8x + 11$ D) $-2x + 11$

Evaluate the function at the given value of the independent variable and simplify.

13) $f(x) = 2x - 4$; $f(3)$ 13) _____
    A) -6 B) 10 C) -2 D) 2

Evaluate the expression without using a calculator.

14) $\log_2 4$ 14) _____

    A) $\dfrac{1}{2}$ B) 1 C) 4 D) 2
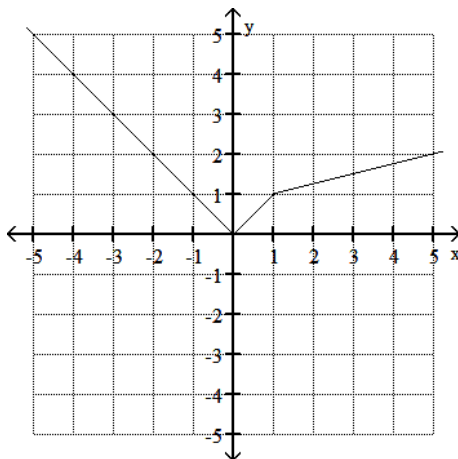
Use the graph to find the indicated function value.

15) $y = f(x)$. Find $f(-5)$ 15) _____

A) 2   B) -5   C) 17   D) 5
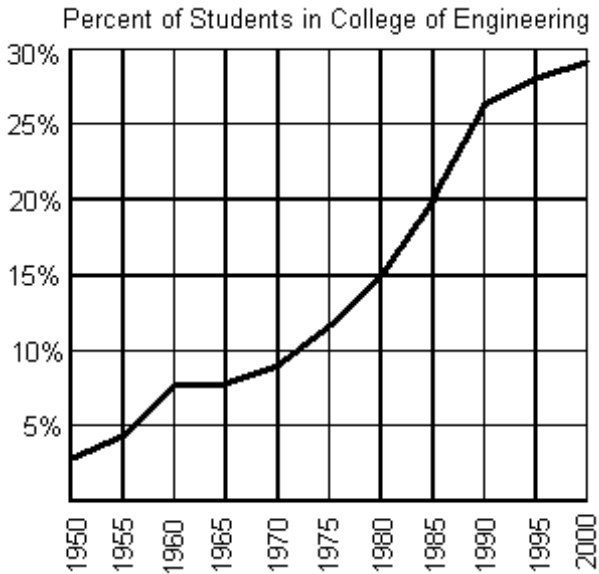
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Solve the system.

16) 3x + 7y = 36

-5x - 4y = -37

A) {(-5, -3)}   B) {(5, -3)}   C) {(5, 3)}   D) {(-5, 3)}

16) _____

The graph below shows the percentage of students enrolled in the College of Engineering at State University. Use the graph to answer the question.

Percent of Students in College of Engineering

17) Does the graph represent a function?

A) yes   B) no

17) _____

18) If f represents the function, find f(1965).

A) approximately 9.5%   B) approximately 2.5%

C) approximately 4%   D) approximately 7.5%

18) _____

19) If f(x) = 26%, what year is represented by x?

A) 1995   B) 1980   C) 1985   D) 1990

19) _____

20) Between what two years is the difference in function values equal to 5%?

A) between 1985 and 1990   B) between 1980 and 1985

C) between 1970 and 1975   D) between 1960 and 1965

20) _____