

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

1) If $f(x) = \frac{4x}{8(x+2)(-x-1)}$, which of the following are true? 1) _____

(I) -1 is the domain

(II) $f\left(\frac{1}{2}\right) = -\frac{1}{15}$

(III) $f(0) = -\frac{1}{16}$

(IV) f is not defined at $x = -2$ and $x = -1$

A) (I) and (IV)

B) (I) and (II)

C) (II) and (III)

D) (II) and (IV)

E) none of the above

2) For $f(x) = -x^2 + 3x + 1$ compute $f(x + 1)$. 2) _____

F) $-x^2 + 5x + 5$

G) $-x^2 + 3x + 5$

H) $-x^2 + x + 3$

J) $-x^2 + 3x + 3$

K) none of the above

3) Determine the y -intercept of the graph of the following function: $y = 3x + 8$. 3) _____

A) $\left(-\frac{8}{3}, 0\right)$

B) $(8, 0)$

C) $\left(0, -\frac{8}{3}\right)$

D) $(0, 8)$

E) none of the above

4) Find the point(s) of intersection of the pair of curves $y = x^3 - x$ and $y = 3x$. 4) _____

F) $(0, 0)$, $(2, 6)$, and $(-2, -6)$

G) $(0, 0)$, $(4, 0)$ and $(-4, 0)$

H) $(0, 0)$

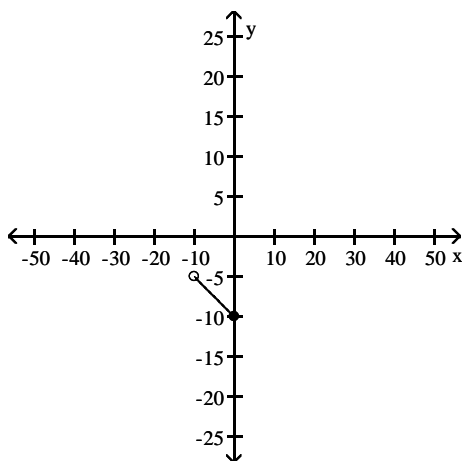
J) $(0, 0)$ and $(1, 0)$

K) none of the above

Solve the problem.

5) Write the domain and range of the function using interval notation.

5) _____



- A) domain: $[-10, 0)$
 range: $(-10, -5]$
 C) domain: $(-10, 0]$
 range: $[-10, -5]$

- B) domain: $[-10, -5)$
 range: $(-10, 0]$
 D) domain: $(-10, -5]$
 range: $[-10, 0)$

6) To convert a temperature from degrees Celsius to degrees Fahrenheit, you multiply the temperature in degrees Celsius by 1.8 and then add 32 to the result. Express F as a linear function of c .

6) _____

F) $F(c) = 33.8c$

G) $F(c) = \frac{c - 32}{1.8}$

H) $F(c) = 1.8 + 32c$

J) $F(c) = 1.8c + 32$

Provide an appropriate response.

7) $\frac{x^3 + 4x^2 - 12x}{4x}$

7) _____

A) $5x^2 - 12x$

B) $x^3 + 4x^2 - 3$

C) $\frac{x^2}{4} - 4x^2 - 12x$

D) $\frac{x^2}{4} + x - 3$

E) $x^3 - 11x$

8) Solve for x : $1 - 4x - 4x^2 = 0$

8) _____

F) $\frac{1}{2} \pm \frac{1\sqrt{2}}{2}$

G) $\frac{1}{2}$

H) $-2 \pm 2\sqrt{2}$

J) $-\frac{1}{2} \pm \frac{\sqrt{2}}{2}$

K) $2 \pm 2\sqrt{2}$

Evaluate the expression. Write your answer without negative exponents.

9) -4^4

9) _____

A) 256

B) -256

C) -16

D) 16

Simplify the expression. Write your answer without negative exponents. Whenever an exponent is negative or zero, assume that the base is not zero.

10) $\frac{x^7}{x^{-8}}$ 10) _____

F) $\frac{1}{x^1}$

G) $\frac{1}{x^{15}}$

H) $-x^1$

J) x^{15}

11) $(6x^7)^2$ 11) _____

A) $36x^{14}$

B) $6x^{14}$

C) $6x^9$

D) $36x^7$

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

12) $\frac{7x^2 - 9x + 2}{x - 1}$ 12) _____

F) $\frac{1}{x - 1}, x \neq 1$

G) $7x - 2, x \neq 1$

H) $\frac{7x^2 - 9x + 2}{x - 1}, x \neq 1$

J) $7x^2 - 11$, no restrictions on x

Calculate.

13) $2 \cdot 1 - 2 \cdot 9^2 + 6(3 - 4)$ 13) _____

A) -146

B) -328

C) -6

D) -166

Solve.

14) $5x - (4x - 1) = 2$ 14) _____

F) 1

G) $\frac{1}{9}$

H) -1

J) $-\frac{1}{9}$

Simplify the radical expression by factoring out the largest perfect n th power. Assume that all variables are positive.

15) $\sqrt{150}$ 15) _____

A) $5\sqrt{6}$

B) 5

C) $25\sqrt{6}$

D) 12

Solve.

16) $9x^2 - 18x = 0$ 16) _____

F) 9, 2

G) 0, 2

H) 2

J) 9

17) $x^2 - 4x + 4 = 16$ 17) _____

A) 18

B) 6, -2

C) -2, -6

D) 4, -4

18) $7x + 3 = 3x - 9$ 18) _____

F) -3

G) -12

H) $-\frac{9}{4}$

J) 3

Evaluate the expression without using a calculator.

19) $27^{4/3}$ 19) _____

A) 2187

B) 81

C) 729

D) 243

Factor the polynomial as the difference of two squares.

20) $9x^2 - 25$

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

G) $(3x + 5)(3x - 5)$

H) $(3x + 5)^2$

J) prime

20) _____

Perform the indicated operations. Write the resulting polynomial in standard form.

21) $(x + 5y)(x + 6y)$

A) $x^2 + 11xy + 11y^2$

B) $x^2 + 8xy + 30y^2$

C) $x + 11xy + 30y$

D) $x^2 + 11xy + 30y^2$

21) _____

22) $(11x - y)^2$

F) $121x^2 - 11xy + y^2$

G) $121x^2 - 22xy + y^2$

H) $121x^2 + y^2$

J) $121x^2 - 22xy - 2y^2$

22) _____

Factor the polynomial by removing any common monomial factor.

23) $5t^2 - 10t - 25$

A) $5t(t^2 - 2t - 5)$

B) $5(t^2 - 5t - 20)$

C) $5(t^2 - 10t - 25)$

D) $5(t^2 - 2t - 5)$

23) _____

Perform the indicated operations. Write the resulting polynomial in standard form.

24) $-6x(4x + 5)$

F) $-24x^2 + 5x$

G) $-54x^2$

H) $-24x^2 - 30x$

J) $4x^2 - 30x$

24) _____

25) $(3x^6 + 2x^3 + 19) - (7x^6 + 14x^3 - 5)$

A) $-4x^6 + 9x^3 + 14$

B) $8x^9$

C) $-4x^6 - 12x^3 + 24$

D) $-4x^6 - 12x^3 + 14$

25) _____

Simplify the expression. Write your answer without negative exponents. Whenever an exponent is negative or zero, assume that the base is not zero.

26) $(2^4)^2$

F) 16

G) 32

H) 64

J) 256

26) _____

Evaluate the expression. Write your answer without negative exponents.

27) 3^{-2}

A) $\frac{1}{6}$

B) -9

C) 9

D) $\frac{1}{9}$

27) _____

28) 4^0

F) 0

G) 1

H) 4

J) -1

28) _____

Provide an appropriate response.

29) Factoring $(x + 1)(x - 3) + (x + 7)(x - 3)$ gives

A) $(x + 1)(x + 7)(x - 3)$

B) $2(x - 3)(x + 8)$

C) $(x - 3)(2x - 2)$

D) $(x + 1)(x + 7)(x - 3)^2$

E) $2(x - 3)(x + 4)$

29) _____

Solve the problem.

30) Find $h(-2)$ when $h(x) = x^2 - 4x + 2$.

F) -6

G) -2

H) 10

J) 14

30) _____

Factor the trinomial, or state that the trinomial is prime.

31) $x^2 + 10x - 24$

A) $(x - 12)(x + 1)$

B) $(x - 12)(x + 2)$

C) $(x + 12)(x - 2)$

D) prime

31) _____

Simplify the expression. Write your answer without negative exponents. Whenever an exponent is negative or zero, assume that the base is not zero.

32) $(-9x^4)(3x^3)$

F) $-27x^7$

G) $-27x^{12}$

H) $27x^{12}$

J) $27x^7$

32) _____

33) $x \cdot x^3$

A) $2x^4$

B) x^3

C) x^4

D) $2x^3$

33) _____