

Question

123456789101112131415161718192021222324252627282930313233343536

Description

This homework assignment covers Chapter 1: 1.1, 1.2, 1.3, 1.4, and 1.5... Please work as many problems as possible and turn in your work by the due date. Late homework is NOT accepted. As always, if you need anything, please email me Joshua.Patterson@tamuc.edu

1. Question Details

SPreCalc6 1.1.003. [1614223]

The set of numbers between but not including 2 and 7 can be written as follows:
in set-builder notation:

- $\{x \mid 2 < x \leq 7\}$
- $\{x \mid 2 < x < 7\}$
- $\{x \mid 2 \leq x < 7\}$
- $\{x \mid 2 \leq x \leq 7\}$

in interval notation:

- $[2, 7)$
- $(2, 7]$
- $(2, 7)$
- $[2, 7]$

2. Question Details

SPreCalc6 1.1.005.MI. [2684203]

List the elements of the given set that are natural numbers, integers, rational numbers, and irrational numbers. (Enter your answers as comma-separated lists.)

$$\left\{0, -19, 50, \frac{22}{7}, 0.538, \sqrt{3}, -\frac{1}{3}, \sqrt[3]{2}\right\}$$

(a) natural numbers

(b) integers

(c) rational numbers

(d) irrational numbers

List the elements of the given set that are natural numbers, integers, rational numbers, and irrational numbers. (Enter your answers as comma-separated lists.)

$$\left\{1.001, \frac{4}{9}, -\pi, -12, 12, \frac{13}{15}, \sqrt{64}, 3.14, \frac{21}{3}\right\}$$

(a) natural numbers

(b) integers

(c) rational numbers

(d) irrational numbers

Find the indicated set if given the following. (Enter EMPTY for the empty set.)

$$A = \{1, 2, 3, 4, 5, 6, 7\} \quad B = \{3, 5, 7, 9\} \quad C = \{7, 8, 9, 10\}$$

(a) $A \cup B$

(b) $A \cap B$

Find the indicated set if given the following. (Enter EMPTY for the empty set.)

$$A = \{1, 2, 3, 4, 5, 6, 7\} \quad B = \{1, 3, 6, 10\} \quad C = \{7, 8, 9, 10\}$$

(a) $A \cup B \cup C$

(b) $A \cap B \cap C$

Find the indicated set if given the following.

$$A = \{x \mid x \geq -2\} \quad B = \{x \mid x < 7\} \quad C = \{x \mid -1 < x \leq 8\}$$

(a) $B \cup C$

- $\{x \mid x < 8\}$
- $\{x \mid x \leq 8\}$
- $\{x \mid 7 < x < 8\}$
- $\{x \mid 7 \leq x \leq 8\}$
- all real numbers
- none of these

(b) $B \cap C$

- $\{x \mid -2 < x < 7\}$
- $\{x \mid -2 \leq x \leq 7\}$
- $\{x \mid -1 < x < 7\}$
- $\{x \mid -1 \leq x \leq 7\}$
- all real numbers
- none of these

Find the indicated set if given the following.

$$A = \{x \mid x \geq -3\} \quad B = \{x \mid x < 5\} \quad C = \{x \mid -1 < x \leq 6\}$$

(a) $A \cap C$

- $\{x \mid -3 \leq x < 5\}$
- $\{x \mid -3 \leq x \leq 5\}$
- $\{x \mid -1 < x \leq 6\}$
- $\{x \mid -1 \leq x \leq 6\}$
- none of these

(b) $A \cap B$

- $\{x \mid -3 \leq x < 5\}$
- $\{x \mid -3 \leq x \leq 5\}$
- $\{x \mid -1 < x \leq 6\}$
- $\{x \mid -1 \leq x \leq 6\}$
- none of these

8. Question Details

SPreCalc6 1.2.041. [1700530]

Simplify the expression and eliminate any negative exponent(s).

(a) $(8x^7y^3)(2x^2y^9)$

(b) $(10a^8z^6)\left(\frac{1}{2}a^5z^3\right)$

9. Question Details

SPreCalc6 1.2.045. [1700536]

Simplify the expression and eliminate any negative exponent(s).

(a) $\frac{8y^7z}{2y^3z^4}$

(b) $\frac{(xy^2z^2)^4}{(x^3y^2z)^3}$

10. Question Details

SPreCalc6 1.2.049. [1700549]

Simplify the expression and eliminate any negative exponent(s).

(a) $\frac{20a^3b^{-9}}{5a^{-7}b^9}$

(b) $\left(\frac{y}{2x^{-5}}\right)^{-2}$

11. Question Details

SPreCalc6 1.2.053. [2687420]

Simplify the expression. Assume x denotes any real number.

$\sqrt[6]{x^6}$

12. Question Details

SPreCalc6 1.2.055. [2687531]

Simplify the expression. Assume x denotes any real number.

$$\sqrt[5]{32x^{30}}$$

13. Question Details

SPreCalc6 1.2.074. [2687510]

Simplify the expression and eliminate any negative exponent(s). Assume that all letters denote positive numbers.

(a) $\sqrt[7]{x^5y^2} \sqrt[14]{x^4y^{24}}$

(b) $\frac{\sqrt[5]{32x^3}}{\sqrt{x}}$

14. Question Details

SPreCalc6 1.3.001. [1614287]

Consider the polynomial $2x^6 + 10x^5 + 12x^4$.

How many terms does this polynomial have?

List the terms. (Enter your answers as a comma-separated list.)

What factor is common to each term?

Factor the polynomial $2x^6 + 10x^5 + 12x^4$.

15. Question Details

SPreCalc6 1.3.071. [1614234]

Factor the trinomial.

$$5x^2 - 47x + 56$$

16. Question Details

SPreCalc6 1.3.072. [1615242]

Factor the trinomial.

$$7x^2 - 54x - 16$$

17. Question Details

SPreCalc6 1.3.073.MI. [1615934]

Factor the trinomial.

$$(3x + 2)^2 + 14(3x + 2) + 48$$

18. Question Details

SPreCalc6 1.3.076. [1701555]

Use a Special Factoring Formula to factor the expression.

$$(x + 8)^2 - 16$$

19. Question Details

SPreCalc6 1.3.077. [1701645]

Use a Special Factoring Formula to factor the expression.

$$8x^3 + y^3$$

20. Question Details

SPreCalc6 1.3.080.MI. [1701746]

Use a Special Factoring Formula to factor the expression.

$$1 + 27y^3$$

21. Question Details

SPreCalc6 1.3.084. [1616380]

Factor the expression by grouping terms.

$$7x^3 - 5x^2 + 14x - 10$$

22. Question Details

SPreCalc6 1.3.085. [1615401]

Factor the expression by grouping terms.

$$x^3 + 9x^2 - 3x - 27$$

23. Question Details

SPreCalc6 1.3.095.MI. [1614095]

Factor the expression completely.

$$15x^3 + 10x$$

24. Question Details

SPreCalc6 1.3.097.MI. [1616211]

Factor the expression completely.

$$x^2 - 7x - 8$$

25. Question Details

SPreCalc6 1.3.101.MI. [1615349]

Factor the expression completely.

$$3x^2 - 12x - 63$$

26. Question Details

SPreCalc6 1.4.001. [1613480]

Which of the following are rational expressions?

(a) $\frac{2x}{x^2 - 3}$

- rational
- not rational

(b) $\frac{\sqrt{x+3}}{7x+4}$

- rational
- not rational

(c) $\frac{x(x^2 - 2)}{x + 8}$

- rational
- not rational

Find the domain of the expression.

$$2x^2 - 16x + 7$$

- $x \leq 0$
- $x < 7$
- $x > 7$
- $x \geq 0$
- all real numbers

Find the domain of the expression.

$$\frac{5x + 1}{x - 4}$$

- $x \leq 0$
- $x > 4$
- $x \neq 4$
- all real numbers
- $x < 0$

Find the domain of the expression.

$$\sqrt{x + 5}$$

- $x \geq -5$
- all real numbers
- $x > -5$
- $x < -5$
- $x \leq 0$

Find the domain of the expression.

$$\frac{1}{\sqrt{x - 5}}$$

- $x \geq 5$
- $x > 5$
- $x < 5$
- $x \leq 0$
- all real numbers

Find the domain of the expression.

$$\frac{x^2 + 6}{x^2 - 3x - 18}$$

- $-3 < x < 6$
- $x \neq 6, -3$
- $x > 6$
- $x < -3$
- all real numbers

Simplify the rational expression. (Give your answer in factored form.)

$$\frac{x^2 - x - 30}{x^2 - 25}$$

Perform the addition or subtraction and simplify. (Give your answer in factored form.)

$$4 + \frac{x}{x + 6}$$

Perform the addition or subtraction and simplify. (Give your answer in factored form.)

$$\frac{1}{x + 2} + \frac{6}{x - 1}$$

The given equation is either linear or equivalent to a linear equation. Solve the equation. (If there is no solution, enter NO SOLUTION. If all real numbers are solutions, enter REALS.)

$$2x - 8 = 3$$

$x =$

The given equation is either linear or equivalent to a linear equation. Solve the equation. (If there is no solution, enter NO SOLUTION. If all real numbers are solutions, enter REALS.)

$$6x + 9 = 57$$

$x =$

37. Question Details

SPreCalc6 1.5.016. [1614076]

The given equation is either linear or equivalent to a linear equation. Solve the equation. (If there is no solution, enter NO SOLUTION. If all real numbers are solutions, enter REALS.)

$$15t - 13 = 7 - 15t$$

$t =$

38. Question Details

SPreCalc6 1.5.026. [1615114]

The given equation is either linear or equivalent to a linear equation. Solve the equation. (If there is no solution, enter NO SOLUTION. If all real numbers are solutions, enter REALS.)

$$\frac{5}{x-1} + \frac{6}{x+1} = \frac{6}{x^2-1}$$

$x =$

39. Question Details

SPreCalc6 1.5.030. [1767935]

Solve the equation for the indicated variable.

$$F = G \frac{mM}{r^2}; \text{ for } m$$

$m =$

40. Question Details

SPreCalc6 1.5.032. [1767928]

Solve the equation for the indicated variable.

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}; \text{ for } R_2$$

$R_2 =$

41. Question Details

SPreCalc6 1.5.044. [1767930]

Solve the equation by factoring.

$$x^2 + 3x - 4 = 0$$

$x =$ (smaller value)

$x =$ (larger value)

42. Question Details

SPreCalc6 1.5.047.MI. [1613794]

Solve the equation by factoring.

$$4x^2 - 4x - 3 = 0$$

$x =$ (smaller value)

$x =$ (larger value)

43. Question Details

SPreCalc6 1.5.049. [1703917]

Solve the equation by factoring.

$$5x^2 + 14x = 3$$

$x =$ (smaller value)

$x =$ (larger value)

44. Question Details

SPreCalc6 1.5.050.MI. [1615010]

Solve the equation by factoring.

$$6x(x - 1) = 6 - 11x$$

$x =$ (smaller value)

$x =$ (larger value)

45. Question Details

SPreCalc6 1.5.052. [1703863]

Solve the equation by factoring.

$$2x^2 - 50 = 0$$

$x =$ (smaller value)

$x =$ (larger value)

46. Question Details

SPreCalc6 1.5.054. [1703877]

Solve the equation by factoring.

$$(2x - 9)^2 = 8$$

$x =$ (smaller value)

$x =$ (larger value)

Assignment Details