

Exam

Name

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Rev 1

P1:1

$$\begin{array}{r} 4 \overline{) 11} \\ \underline{-8} \\ 30 \\ \underline{-28} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

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

Find the decimal form for the rational number. If it repeats, then so indicate with a bar.

1) $\frac{11}{4}$

A) $2.\overline{75}$

B) $2.\overline{75}$

C) 2.75

D) 2.76

1) C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Describe and graph the interval of real numbers.

2) $-3 < x \leq 4$



All real #'s greater than -3 and less than or equal to 4.

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

Use an inequality to describe the interval of real numbers.



A) $-9 \leq x < 5$

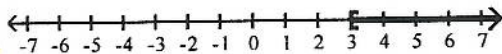
B) $-9 < x < 5$

C) $-9 < x \leq 5$

D) $-9 \leq x \leq 5$

3) A

Use interval notation to describe the interval of real numbers.



A) $(-\infty, 3)$

B) $[3, \infty)$

C) $(-\infty, 3]$

D) $(3, \infty)$

4) B

Use words to describe the interval of real numbers.

5) $x < -8$

A) The real numbers greater than or equal to -8.

B) The real numbers less than or equal to -8.

C) The real numbers less than -8.

D) The real numbers greater than -8.

5) C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Convert to inequality notation. Find the endpoints and state whether the interval is bounded or unbounded, and its type.

6) $(-4, -1)$

$-4 < x < -1$ • Endpoints at -4 and -1 • open • Unbounded

6) _____

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

Use interval notation to describe the set of numbers.

7) Salary raises at Clemson University will average between 3% and 5.5%.

A) $[3, 5.5)$

B) $[5.5, 3]$

C) $(3, 5.5)$

D) $[3, 5.5]$

7) C

Simplify the expression. Assume that the variables in the denominator are nonzero.

$$\frac{3^{-2}}{x^{-2}y^{-4}} = \frac{x^2y^4}{9}$$

8) $\left(\frac{3}{xy^2}\right)^{-2}$

A) $\frac{x^2y^4}{9}$

B) $\frac{9}{x^2y^4}$

C) $\frac{x^2y^4}{3}$

D) $\frac{x^2y^2}{9}$

8) A

Write the number in scientific notation.

9) 0.000433

A) 4.33×10^{-5}

B) 4.33×10^{-3}

C) 4.33×10^4

D) 4.33×10^{-4}

9) D

Write the number in decimal form.

10) 4.0336×10^5

A) 201.68

B) 4,033,600

C) 40,336

D) 403,360

10) D

Find which values of x are solutions.

11) $2x^2 - 7x = 4$

(a) $x = 4$ (b) $x = 0$ (c) $x = -\frac{1}{2}$

A) (b)

B) (a) and (b) C) (a) and (c)

D) (a)

11) C

12) $\sqrt{9 - x^2} + 4 = 7$

(a) $x = 3$ (b) $x = -3$ (c) $x = 0$

A) (a) and (b)

B) (b)

C) (c)

D) (a) and (c)

12) C

Determine whether the equation is linear in x.

13) $7x + 5 = 0.2$

A) No

B) Yes

14) $7x^2 - 2.5x = x^2 - 5$

A) No

B) Yes

Solve the equation.

15) $12(x - 48) = 24$

A) $x = 24$

B) $x = 50$

C) $x = 48$

D) $x = 46$

13) B

14) A

15) B

16) $\frac{2}{5}x - \frac{1}{3}x = 3$

A) $x = 90$

B) $x = -90$

C) $x = -45$

D) $x = 45$

16) D

Find the slope of the line through the pair of points.

17) (9, 1) and (6, 5)

A) $-\frac{4}{3}$

B) $\frac{2}{5}$

C) $-\frac{3}{4}$

D) $\frac{4}{3}$

17) A

Find the value of x or y so that the line through the pair of points has the given slope.

18) (-1, 2) and (4, y); $m = -2$

A) 11

B) 9

C) -9

D) -8

18) D

$$\frac{y-2}{4-(-1)} = -2$$

$$\frac{y-2}{5} = -2$$

$$y-2 = -10$$

Solve the inequality.

19) $0 \leq 5t + 2 < 9$

A) $-\frac{2}{5} < t \leq \frac{7}{5}$

B) $-\frac{11}{5} \leq t < \frac{7}{5}$

C) $-\frac{2}{5} \leq t < \frac{9}{5}$

D) $-\frac{2}{5} \leq t < \frac{7}{5}$

19) D

20) $\frac{1}{4}(x+2) - 4x \leq 2(2+x)$

A) $x \leq \frac{2}{23}$

B) $x \leq -\frac{14}{23}$

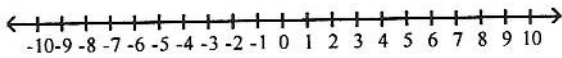
C) $x \geq \frac{2}{23}$

D) $x \geq -\frac{14}{23}$

20) D

Solve the inequality and draw a number line graph of the solution.

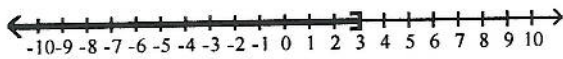
21) $4x - 3 \leq 8x + 9$



A)



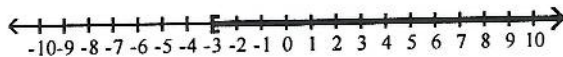
B)



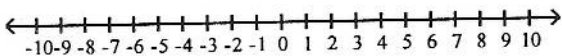
C)



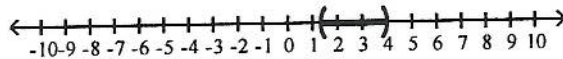
D)



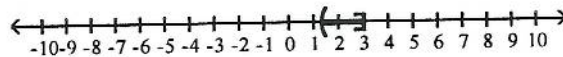
22) $2 < 3x - 2 < 10$



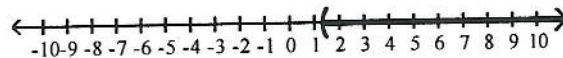
A)



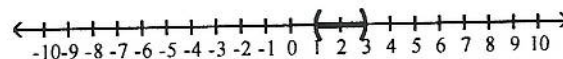
B)



C)



D)



$0 \leq 5t + 2 < 9$

$-2 \leq 5t \leq 7$

$-\frac{2}{5} \leq t < \frac{7}{5}$

$\frac{1}{4}x + \frac{1}{2} - 4x \leq 4 + 2x$

$-\frac{15}{4}x + \frac{1}{2} \leq 4 + 2x$

$-\frac{23}{4}x + \frac{1}{2} \leq 4$

$-\frac{23}{4}x \leq \frac{7}{2}$

$x \leq \frac{7}{2} \cdot \frac{4}{-23} =$

$x \geq -\frac{14}{23}$

$4x - 3 \leq 8x + 9$

$-3 \leq 4x + 9$

$-12 \leq 4x$

$-3 \leq x$

$x \geq -3$

21) D

22) A

$2 < 3x - 2 < 10$

$4 < 3x < 12$

$\frac{4}{3} < x < 4$

$$y + 8 = -\frac{1}{13}(x + 5)$$

Find a point-slope form equation for the line through the point with the given slope.

23) $(-5, -8), m = -\frac{1}{13}$

23) B

A) $y + 8 = -\frac{1}{13}(x - 5)$

B) $y + 8 = -\frac{1}{13}(x + 5)$

C) $y - 8 = -\frac{1}{13}(x + 5)$

D) $y - 8 = \frac{1}{13}(x - 5)$

Find a general form equation for the line through the pair of points.

$$m = \frac{-1+4}{5+2} = \frac{3}{7}$$

24) $(-2, -4)$ and $(5, -1)$

24) A

A) $-3x + 7y + 22 = 0$

B) $-3x - 7y + 22 = 0$

C) $3x - 7y + 22 = 0$

D) $-3x + 7y - 22 = 0$

$$y + 1 = \frac{3}{7}(x - 5)$$

$$7y + 7 = 3x - 15$$

Find a slope-intercept form equation for the line.

25) Through $(5, 3)$, with slope $-\frac{3}{7}$

25) B

A) $y = \frac{3}{7}x - \frac{36}{7}$

B) $y = -\frac{3}{7}x + \frac{36}{7}$

C) $y = \frac{3}{7}x + \frac{15}{7}$

D) $y = -\frac{3}{7}x + \frac{15}{7}$

$$3 = -\frac{3}{7}(5) + b$$

$$3 = -\frac{15}{7} + b$$

$$b = \frac{36}{7}$$

$$y = -\frac{3}{7}x + \frac{36}{7}$$

$$-3x + 7y + 22 = 0$$

$$7 = 3x - 7y - 15$$

$$3x - 7y - 22 = 0$$

Find the value of x and the value of y for which $(x, 2)$ and $(8, y)$ are points on the graph.

26) $2x + 3y = 7$

26) A

A) $x = \frac{1}{2}, y = -3$

B) $x = -\frac{13}{2}, y = -3$

C) $x = \frac{1}{3}, y = -\frac{9}{2}$

D) $x = \frac{1}{2}, y = -\frac{23}{3}$

$$2x + 3(2) = 7$$

$$2x + 6 = 7$$

$$2x = 1$$

$$x = \frac{1}{2}$$

$$2(8) + 3y = 7$$

$$16 + 3y = 7$$

$$3y = -9$$

$$y = -3$$

Determine the equation of the line described. Put answer in the slope-intercept form, if possible.

27) Through $(-3, -7)$, perpendicular to $8x - 3y = -3$

27) B

A) $y = -\frac{8}{3}x + 65$

B) $y = -\frac{3}{8}x - \frac{65}{8}$

C) $y = -\frac{3}{8}x$

D) $y = \frac{3}{8}x + \frac{65}{8}$

$$-3y = -8x - 3$$

$$y = +\frac{8}{3}x + 1$$

$$-7 = -\frac{3}{8}(-3) + b$$

$$-7 = \frac{9}{8} + b$$

$$-65/8 = b$$

Solve the problem.

28) Suppose $y = mx + b$ is a mathematical model for actual time as a function of estimated time, where y represents actual time and x represents estimated time and m and b are constants. If $m = 2.5$ and $b = -3.2$, find y when x is 30 min.

28) A

A) 71.8 min

B) 22 min

C) 38 min

D) 78.2 min

29) Suppose the sales of a particular brand of appliance satisfy the relationship $S(x) = 120x + 3300$, where $S(x)$ represents the number of sales in year x , with $x = 0$ corresponding to 1982. Find the number of sales in 1992.

29) B

A) 9000

B) 4500

C) 4380

D) 8880

30) Let $C(x) = 100 + 80x$ be the cost to manufacture x items. Find the average cost per item to produce 30 items. Round to the nearest dollar.

30) C

A) \$480

B) \$49

C) \$83

D) \$68

$$\begin{array}{r} 30 \\ 2.5 \\ \hline 150 \\ 6 \\ \hline 75.0 \end{array}$$

$$y = 2.5(30) - 3.2$$

$$y = 75 - 3.2$$

$$y = 71.8$$

$$S(10) = 120(10) + 3300$$

$$S(10) = 1200 + 3300$$

$$S(10) = 4500$$

$$C(30) = 100 + 80(30)$$

$$C(30) = 100 + 2400$$

$$C(30) = 2500$$

$$2500/30 = \frac{833}{10}$$

Answer Key

Testname: 1516P1TOP4REVIEW

1) C

2)



All real numbers greater than -3 and less than or equal to 4.

3) A

4) B

5) C

6) $-4 < x < -1$; Endpoints -4 and -1; bounded; open

7) C

8) A

9) D

10) D

11) C

12) C

13) B

14) A

15) B

16) D

17) A

18) D

19) D

20) D

21) D

22) A

23) B

24) A

25) B

26) A

27) B

28) A

29) B

30) C