

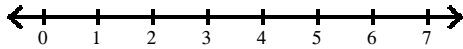
Practice For Semester Exam

Part 1

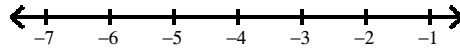
Date_____ Period_____

Solve each inequality and graph its solution.

1) $x + 2 + 5 \leq 10$



2) $-15 < 2n + 3n$

**Solve each inequality.**

3) $9|3m - 4| \geq 99$

4) $7r - 7 \leq 8(r - 1)$

Solve each compound inequality and graph its solution.

5) $3x - 10 < -37$ or $-2x - 5 \leq -11$

Evaluate each function.

6) $h(x) = x^2 + 3$; Find $h(x + 1)$

Write the slope-intercept form of the equation of the line through the given points.

7) through: $(1, -3)$ and $(4, 3)$

8) through: $(0, 3)$ and $(4, -2)$

Write the slope-intercept form of the equation of the line described.

9) through: $(5, 5)$, perp. to $x = 0$

10) through: $(2, 3)$, parallel to $y = -x + 4$

Solve each system.

11) $-4x + y = -11$
 $-5x + 3y = -19$

12) $4x - 4y = 0$
 $-3x + 4y = -5$

Evaluate:

13) $\begin{vmatrix} 3 & 2 \\ -2 & 5 \end{vmatrix}$

14) $\begin{vmatrix} 0 & 0 \\ -3 & -2 \end{vmatrix}$

Simplify. Write "undefined" for expressions that are undefined.

15) $\begin{bmatrix} 5 & -4 \\ 2 & 6 \end{bmatrix} \cdot \begin{bmatrix} -4 & 4 & 2 \\ 6 & 1 & 0 \end{bmatrix}$

Simplify.

16) $3\sqrt{6} - \sqrt{54} - 2\sqrt{24}$

17) $(-4 + \sqrt{2})^2$

18) $(7 - i)(-7 - 3i)$

19) $\frac{9i}{1 - 9i}$

Graph the solution to each system of inequalities.

20) $y < 6x - 3$
 $y > x + 2$

21) $x + 3y < -6$
 $2x - 3y \geq -3$

Simplify. Your answer should contain only positive exponents.

22) $\frac{2m^4n^4}{4m^3n^{-2}}$

Simplify. Use absolute value signs when necessary.

23) $\sqrt{48v^2}$

24) $\sqrt{12xy^2}$

Solve each equation.

25) $4 = \sqrt{v}$

26) $\sqrt{-40 + 13v} = v$

27) $n^2 = -15 - 8n$

28) $m^2 + 7 = -20$

Find the discriminant of each quadratic equation then state the number and type of solutions.

29) $2x^2 - 5x + 9 = 9$

30) $6p^2 + 10p - 3 = -3$

Solve each equation.

31) $8n^2 = 8n + 10$

32) $5m^2 - 4m = -4$

Perform the indicated operation.

33) $f(x) = x + 1$
 $g(x) = -x^3 - 1$
Find $(f - g)(x)$

Find the inverse of each function.

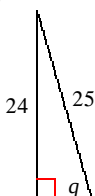
34) $f(x) = -3x + 15$

Determine if the given functions are inverses, use the composition of the two functions.

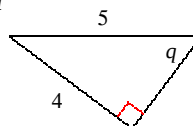
35) $f(x) = -x - 1$
 $g(x) = -1 - \frac{1}{3}x$

Find the EXACT value of the trig function indicated.

36) $\sin q$



37) $\tan q$



38) Find $\sin q$ if $\cos q = \frac{6}{7}$

Answers to Practice For Semester Exam

1) $x \leq 3$:  A number line from 0 to 7. A solid blue circle is at 3, and a blue arrow points to the left from 3, passing through 2, 1, and 0.

2) $n > -3$:  A number line with tick marks from -7 to -1. An open circle is at -3, and the line is shaded blue to the right, ending in an arrow.

$$3) \ m \geq 5 \text{ or } m \leq -\frac{7}{3} \qquad 4) \ r \geq 1$$

4) $r \geq 1$

5) $x < -9$ or $x \geq 3$: 

6) $x^2 + 2x + 4$

7) $y = 2x - 5$

8) $y = -\frac{5}{4}x + 3$

9) $y = 5$

10) $y = -x + 5$

11) $(2, -3)$

12) $(-5, -5)$

13) 19

14) 0

15) $\begin{bmatrix} -44 & 16 & 10 \\ 28 & 14 & 4 \end{bmatrix}$

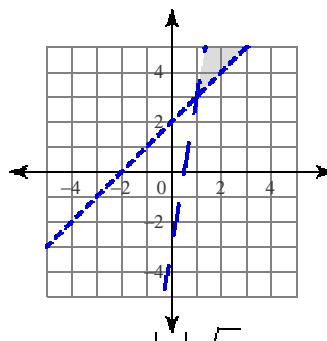
16) $-4\sqrt{6}$

17) $18 - 8\sqrt{2}$

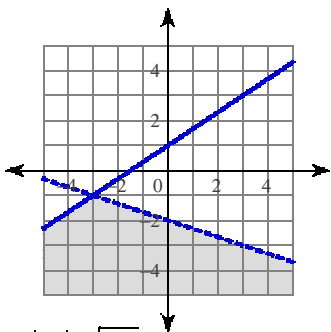
18) $-52 - 14i$

19) $\frac{9i - 81}{82}$

20)



21)



$$22) \frac{n^6 m}{2}$$

23) $4 \sqrt{v \sqrt{3}}$

$$24) \quad 2|y|\sqrt{3x}$$

25) $\{16\}$

26) $\{5, 8\}$

27) $\{-5, -3\}$

28) $\{3i\sqrt{3}, -3i\sqrt{3}\}$

29) 25; two real solutions

30) 100; two real solutions

$$31) \left\{ \frac{1 + \sqrt{6}}{2}, \frac{1 - \sqrt{6}}{2} \right\}$$

32) $\left\{ \frac{2+4i}{5}, \frac{2-4i}{5} \right\}$

33) $x^3 + x + 2$

$$34) \quad f^{-1}(x) = \frac{15 - x}{3}$$

35) No

36) $\frac{24}{25}$

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

38) $\frac{\sqrt{13}}{7}$