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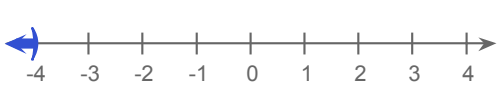
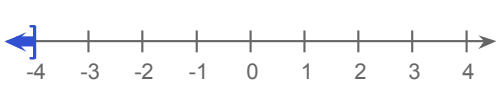
| **Student:** _____<br>**Date:** _____<br>**Time:** _____ | **Instructor:** Natasa Paunovska<br>**Course:** Precalculus (Demana, Waits, Foley, Kennedy)<br>**Book:** Demana: Precalculus: Graphical, Numerical, Algebraic, 8e | **Assignment:** Q1Q1 Review |

1. Graph the interval $(-\infty, -4)$.

Choose the correct graph below.

A. 


B.


C. 


D.


2. Express the set of real numbers graphed on the number line with an inequality.

Choose the inequality that describes the graph.

A. $x > -5$

B. $x \leq -5$

C. $x \geq -5$

D. $x < -5$

3. Choose the inequality whose solution set is $[-5, \infty)$.

A. $x > -5$

B. $x < -5$

C. $x \geq -5$

D. $x \leq -5$

4. Factor. Check by multiplying.

$bx^8 + fx^8$

The factorization is $\square$.

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5. Simplify the expression. Assume that the variables in the denominators are nonzero.

$$\frac{(x^{-2}y^{3})^{-6}}{(y^{5}x^{-2})^{-4}}$$

$\frac{(x^{-2}y^{3})^{-6}}{(y^{5}x^{-2})^{-4}} =$ ☐

(Simplify your answer.)

6. Write the number without exponents.

$6.36 \times 10^{8}$

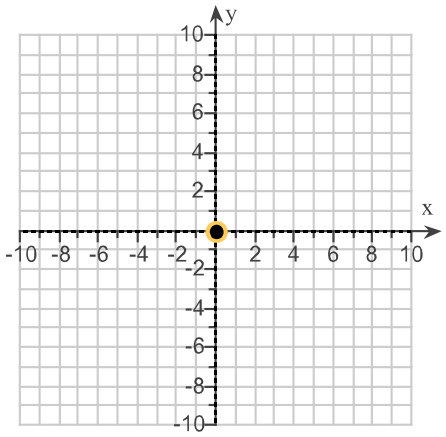
$6.36 \times 10^{8} =$ ☐

7. Locate the point $(-5,2)$ on a rectangular coordinate system. Identify the quadrant in which the point lies.

Plot the point $(-5,2)$.

The point $(-5,2)$ lies in quadrant ☐.

(Type I, II, III, or IV.)




8. Find the distance on the number line between 11.3 and $-9.9$.

The distance is ☐.

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9. Find the area and perimeter of the figure determined by the points.

$(-4,-1), (-2,6), (7,6), (5,-1)$

The area of the figure is ☐.
(Simplify your answer. Type an exact answer, using radicals as needed.)

The perimeter of the figure is ☐.
(Simplify your answer. Type an exact answer, using radicals as needed.)

10. Find the midpoint of the segment with the given endpoints.

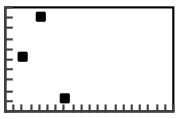
$\left(\frac{1}{4}, -\frac{2}{3}\right)$ and $\left(-\frac{5}{2}, \frac{5}{4}\right)$

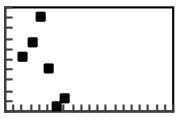
The midpoint is ☐.
(Type an ordered pair. Simplify your answer. Type an integer or a fraction.)

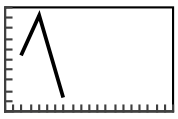
11. For each variable in the table, produce the scatterplot.

| x(year) | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 |
|---|---|---|---|---|---|---|
| y(sales) | 3142 | 3269 | 3526 | 3015 | 2656 | 2740 |

Use the viewing rectangle [1980,2000,1] by [2600,3600,100]. Choose the correct scatterplot.

○A. 

○B. 

○C. 

12. Write the standard equation for the circle whose center is at (3,8) and whose radius is 3.

Choose the correct answer below.

○A. $(x-3)^2+(y-8)^2=9$

○B. $(x+3)^2+(y+8)^2=9$

○C. $(x+3)^2+(y+8)^2=3$

○D. $(x-3)^2-(y+8)^2=3$

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13. Find the center and the radius of the circle.

$(x+3)^2+(y-5)^2=100$

The center is ☐. (Type an ordered pair.)

The radius is ☐. (Type an exact answer, using radicals as needed.)

14. Find the root that is a real number.

$\sqrt[3]{-343}$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

○ A. The cube root is ■.

○ B. The cube root is not a real number.

15. Simplify by factoring.

$\sqrt[4]{405}$

The answer is ☐.

(Type an exact answer, using radicals as needed.)

16. Simplify by factoring.

$\sqrt[3]{-32xy^3}$

$\sqrt[3]{-32xy^3}=$ ☐ (Type an exact answer, using radicals as needed.)

17. Assume that all variables in the following expression represent positive real numbers. Replace the radical with a rational exponent.

$\sqrt[5]{(a+b)^2}$

$\sqrt[5]{(a+b)^2}=$ ☐

(Use integers or fractions for any numbers in the expression. Use positive exponents only.)

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18. Use rational exponents to simplify the radical. Assume the expression is defined.

$$\frac{\sqrt[3]{x^2}}{\sqrt[4]{x}}$$

The expression is equal to ☐.
(Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)

19. Subtract.

$(-4x+7)-(x^2+x-6)$

$(-4x+7)-(x^2+x-6)=$ ☐
(Simplify your answer.)

20. Square the binomial.

$(8x+6y)^2$

The answer is ☐.
(Simplify your answer.)

21. Factor by grouping. Check your answer.

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

$x^3-7x^2+2x-14=$ ☐

22. Perform the operations indicated.

$$\frac{1}{2}+\frac{1}{8}-\frac{1}{4}$$

$\frac{1}{2}+\frac{1}{8}-\frac{1}{4}=$ ☐ (Type an integer or a simplified fraction.)

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23. Write the rational expression in lowest terms.

$$\frac{x^2 - 11x + 18}{x^2 + 3x - 10}$$

$$\frac{x^2 - 11x + 18}{x^2 + 3x - 10} = \square$$

(Simplify your answer.)

24. Multiply the expressions.

$$\frac{x^2 - 6x + 8}{x^2 - x - 2} \cdot \frac{x^2 - 1}{x^2 - 16}$$

$$\frac{x^2 - 6x + 8}{x^2 - x - 2} \cdot \frac{x^2 - 1}{x^2 - 16} = \square$$

(Simplify your answer. Leave the result in factored form.)

25. Simplify.

$$\frac{\frac{1}{c} + \frac{1}{g}}{\frac{1}{c^2} - \frac{1}{g^2}}$$

$$\frac{\frac{1}{c} + \frac{1}{g}}{\frac{1}{c^2} - \frac{1}{g^2}} = \square$$

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1. A

2. A

3. C

4. $x^8(b+f)$

5. $x^4y^2$

6. 636,000,000

7. $(-5,2)$
II

8. 21.2

9. 63
$18+2\sqrt{53}$

10. $\left(-\frac{9}{8},\frac{7}{24}\right)$

11. B

12. A

13. $(-3,5)$
10

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14. A, $-7$

15. $3\sqrt[4]{5}$

16. $-2y\sqrt[3]{4x}$

17. $(a+b)^{2/5}$

18. $\sqrt[12]{x^5}$

19. $-x^2-5x+13$

20. $64x^2+96xy+36y^2$

21. $(x-7)(x^2+2)$

22. $\frac{3}{8}$

23. $\frac{x-9}{x+5}$

24. $\frac{x-1}{x+4}$

25. $\frac{cg}{g-c}$