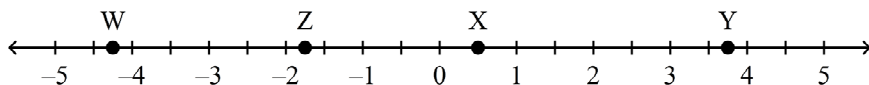


PreCalc 11 Chapter 2 Review Pack v1

Multiple Choice

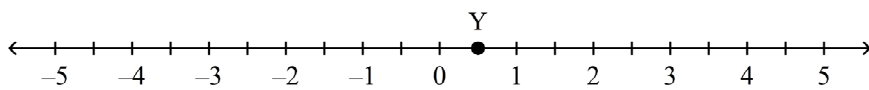
Identify the choice that best completes the statement or answers the question.

- _____ 1. Which point on the number line has an absolute value of 3.75?



- A. Z B. X C. W D. Y

- _____ 2. What is the absolute value of the number represented by point Y on the number line?



- A. -0.5 B. 3 C. -3 D. 0.5

- _____ 3. What is the distance between 9 and $-2\frac{1}{5}$ on a number line?

- A. $11\frac{1}{5}$ B. $\frac{5}{34}$ C. $6\frac{4}{5}$ D. $\frac{5}{56}$

- _____ 4. Evaluate: $\sqrt{(-21 - (-1))^2}$

- A. 400 B. 4.47 C. 22 D. 20

- _____ 5. Evaluate: $|-8 + (11)| - 7|19 - (5)|$

- A. -187 B. 56 C. -95 D. -165

- _____ 6. Evaluate: $-2|-17 + (5)| - (-5 - (3))|1 - (-13)|$

- A. -30 B. 122 C. 88 D. -88

- _____ 7. Write this mixed radical as an entire radical: $-\frac{1}{3}\sqrt{\frac{5}{3}}$

- A. $-\sqrt{\frac{5}{14}}$ B. $-\sqrt{\frac{5}{27}}$ C. $-\sqrt{14}$ D. $\sqrt{\frac{1}{27}}$

- _____ 8. Write this entire radical as a mixed radical: $\sqrt{27}$
 A. $3\sqrt{3}$ B. $6\sqrt{3}$ C. $3\sqrt{9}$ D. $6\sqrt{6}$
- _____ 9. Write this entire radical as a mixed radical: $\sqrt{\frac{45}{112}}$
 A. $\frac{3}{2}\sqrt{\frac{5}{29}}$ B. $\frac{9\sqrt{5}}{25}$ C. $\frac{5\sqrt{3}}{28}$ D. $\frac{3}{4}\sqrt{\frac{5}{7}}$
- _____ 10. Write this entire radical as a mixed radical: $\sqrt[3]{-\frac{54}{125}}$
 A. $-2\sqrt[3]{\frac{3}{5}}$ B. $\sqrt[3]{-\frac{6}{5}}$ C. $-\frac{5\sqrt[3]{2}}{3}$ D. $-\frac{3\sqrt[3]{2}}{5}$
- _____ 11. For which values of the variable, x , is this radical defined?
 $\sqrt{-74x^3}$
 A. $x \geq 0$ C. $x \leq 0$
 B. $x \in \mathbb{R}$ D. $x < 0$
- _____ 12. Write this radical in simplest form: $\sqrt{63a^7b^6}$
 Then state the values of the variables, a and b , for which the radical is defined.
 A. $3a^3b^3\sqrt{7a}$; $a \in \mathbb{R}, b \geq 0$ C. $3a^3b^3\sqrt{7a}$; $a \geq 0, b \in \mathbb{R}$
 B. $3ab\sqrt{7a^3b^3}$; $a \in \mathbb{R}, b \geq 0$ D. $3ab\sqrt{7a^3b^3}$; $a \geq 0, b \in \mathbb{R}$
- _____ 13. Which statement is true?
 i) $\sqrt{-475x^5} = (-5x^2)\sqrt{19x}$; for $x \in \mathbb{R}$
 ii) $\sqrt{-475x^5} = 5x^2\sqrt{-19x}$; for $x \leq 0$
 iii) $\sqrt{-475x^5} = 5x^2\sqrt{-19x}$; for $x \geq 0$
 iv) There are no values of $x \in \mathbb{R}$ for which $\sqrt{-475x^5} = 5x^2\sqrt{-19x}$.
 A. i B. iv C. iii D. ii
- _____ 14. Which radical expression simplifies to $4\sqrt{2}$?
 A. $\sqrt{25}$ B. $\sqrt{128}$ C. $\sqrt{8}$ D. $\sqrt{32}$

- _____ 15. Which radical expression simplifies to $11\sqrt{2}$?
- A. $\sqrt{128} + 5\sqrt{8} - \sqrt{2}$ C. $\sqrt{2} + 5\sqrt{8} - \sqrt{128}$
 B. $\sqrt{128} - \sqrt{8} + 5\sqrt{2}$ D. $\sqrt{128} - 5\sqrt{2} + \sqrt{8}$
- _____ 16. Which radical expression simplifies to $30\sqrt{5} + 2\sqrt{2}$?
- A. $\sqrt{32} + \sqrt{3125} - \sqrt{8} + \sqrt{125}$
 B. $\sqrt{32} + \sqrt{3125} + \sqrt{8} + \sqrt{125}$
 C. $\sqrt{32} + \sqrt{3125} + \sqrt{8} - \sqrt{125}$
 D. $\sqrt{32} - \sqrt{3125} + \sqrt{8} - \sqrt{125}$
- _____ 17. Which radical expression simplifies to $-3\sqrt{x}$?
- A. $4\sqrt{x} + 5\sqrt{x} + 2\sqrt{x}, x \in \mathbb{R}$ C. $4\sqrt{x} - 5\sqrt{x} - 2\sqrt{x}, x \in \mathbb{R}$
 B. $4\sqrt{x} - 5\sqrt{x} - 2\sqrt{x}, x \geq 0$ D. $4\sqrt{x} + 5\sqrt{x} + 2\sqrt{x}, x \geq 0$
- _____ 18. Which radical expression simplifies to $-12r^2\sqrt{2s}, r \in \mathbb{R}, s \geq 0$?
- A. $-2\sqrt{2r^4s} - 4r\sqrt{2r^2s} - 6r^2\sqrt{2s}$
 B. $-2\sqrt{2r^4s} - 4r\sqrt{2r^3s} + 6r^2\sqrt{2s}$
 C. $-2\sqrt{2r^3s} - 4r\sqrt{2r^2s} - 6r^3\sqrt{2s}$
 D. $-2\sqrt[3]{2r^4s} - 4r\sqrt[3]{2r^2s} - 6r^2\sqrt[3]{2s}$
- _____ 19. Simplify this radical, if possible: $\sqrt{125}$
- A. $\sqrt{5}$ C. $\sqrt[3]{5}$
 B. $5\sqrt{5}$ D. cannot be simplified
- _____ 20. Simplify this radical, if possible: $\sqrt{95}$
- A. $6\sqrt{19}$ C. $19\sqrt{5}$
 B. $9\sqrt{5}$ D. cannot be simplified
- _____ 21. Simplify by adding or subtracting like terms: $\sqrt{243} + 9\sqrt{3} - \sqrt{27}$
- A. $3\sqrt{3}$ B. $15\sqrt{3}$ C. $21\sqrt{3}$ D. 0

_____ 30. Simplify this expression: $\frac{-9\sqrt{5} + 4\sqrt{2}}{\sqrt{5} - \sqrt{2}}$

A. $\frac{-37 + 36\sqrt{10}}{3}$

B. $\frac{-53 - 5\sqrt{10}}{10}$

C. $\frac{-53 + 36\sqrt{10}}{3}$

D. $\frac{-37 - 5\sqrt{10}}{3}$

_____ 31. Simplify this expression: $\frac{-7\sqrt{5} + 7\sqrt{7}}{\sqrt{2} - 5}$

A. $\frac{7\sqrt{10} - 7\sqrt{14} + 35\sqrt{5} - 35\sqrt{7}}{23}$

B. $\frac{7\sqrt{10} - 7\sqrt{14} + 35\sqrt{5} - 35\sqrt{7}}{-3}$

C. $\frac{7\sqrt{5} + 49\sqrt{70} - 35\sqrt{7}}{-3}$

D. $\frac{7\sqrt{5} + 49\sqrt{70} - 35\sqrt{7}}{23}$

_____ 32. Simplify this expression:

$$\frac{\sqrt{5}}{4\sqrt{2} + 2\sqrt{7}} - \frac{\sqrt{7}}{3\sqrt{3} + 3\sqrt{2}}$$

A. $\frac{36\sqrt{10} + 3\sqrt{35} + 4\sqrt{21} - 4\sqrt{14}}{36}$

B. $\frac{6\sqrt{10} - 3\sqrt{35} + 2\sqrt{21} - 2\sqrt{14}}{12}$

C. $\frac{6\sqrt{10} - 3\sqrt{35} - 2\sqrt{21} + 2\sqrt{14}}{6}$

D. $\frac{6\sqrt{10} - 3\sqrt{35} - 2\sqrt{21} - 2\sqrt{14}}{6}$

_____ 33. Solve this equation: $\sqrt{x-8} - 2 = 4$

A. $x = 44$

B. $x = 36$

C. $x = 14$

D. $x = 28$

_____ 34. Solve this equation: $2\sqrt{x} - 8 = 4$

A. $x = 25$

B. $x = 36$

C. $x = 6$

D. $x = 12$

_____ 35. Solve this equation: $-6 = \sqrt[4]{8x+9} - 9$

A. $x = 9$

B. $x = -9$

C. $x = 72$

D. $x = \frac{81}{8}$

Short Answer

1. Evaluate each expression, then order the values of the expressions from greatest to least.

i) $\sqrt{(-4+(8))^2} - |-4-(8)|$

ii) $|-4-(8)|(-4+(8)) - (9)$

iii) $\frac{|-4-(9)|}{-4+(9)}(8)$

iv) $|-4+(8)|+9|-4-(8)|$

2. Evaluate each expression, then order the values of the expressions from least to greatest.

i) $10 + |8| + (7)$

ii) $|10 - (8)| - (7)$

iii) $7 - |8 - (10)|$

iv) $|7 - (8) + (10)|$

3. Determine the root of each equation.

a) $\sqrt{2x-6} = 4$

b) $3\sqrt{2x-3} = 2\sqrt{2x} + 1$

c) $\sqrt{6x+1} = \sqrt{2x-5}$

d) $12 = \sqrt{168-4x}$

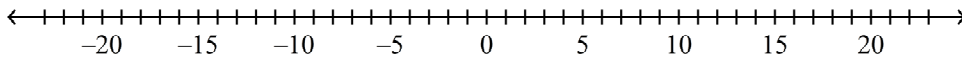
4. A rope is $\sqrt{250}$ units long. The rope is cut into two pieces so that the ratio of their lengths is 2:3. In simplest form, what is the length of each piece?
5. The speed of sound in air is given by the equation $s = 20\sqrt{273+t}$, where s is the speed in metres per second and t is the temperature in degrees Celsius.
- a) To the nearest degree Celsius, determine the temperature when the speed of sound is 318 m/s.
- b) To the nearest metre per second, determine the speed of sound when the temperature is 20°C .

Problem

1. Order the absolute values of the numbers in this set from least to greatest. Describe the strategy you used.
3, 0.5, 1, 1.6, 7.6, -3.5 , 6.2

2. Mark each number on the number line below and indicate its distance from 0.

$$A = 8 \qquad B = 3 \qquad C = -3\frac{1}{2} \qquad D = -9$$

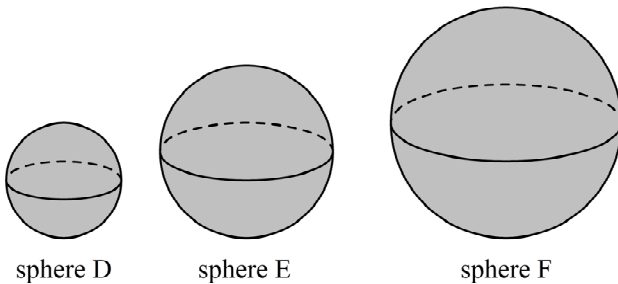


3. When -9 is added to an integer, x , the absolute value of the sum is 19. Determine a value for x . How many different values of x are possible? Show how you solved the problem.

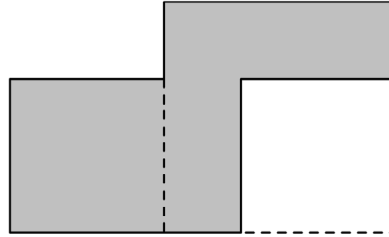
4. A right triangle has legs of lengths $\frac{3}{2}x$ and x^2 .

- a) What are the restrictions on the variable x ?
b) Write an expression for the length of the hypotenuse. Show your work.

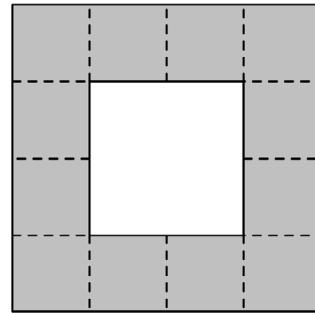
5. The volume of sphere D is N cubic units. The volume of sphere E is 3 times the volume of sphere D. Sphere F has a volume 6 times that of sphere D. Determine the radius of sphere E and of sphere F in terms of N . Show your work.



6. A square with area 44 square units is cut from a larger square, then placed beside it as shown. The side length of the larger square is $\frac{3}{2}$ times as long as the side length of the smaller square. In simplest form, write a radical expression for the perimeter of the shaded region. Show your work.

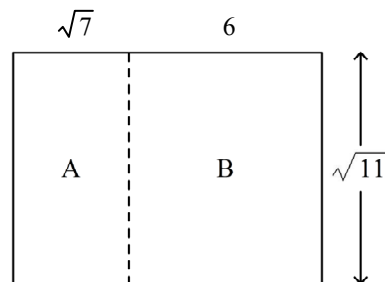


7. Sixteen congruent squares are placed together to form a large square. The 4 middle squares are removed. The final shape is a square within a square. The area of the large square is 112 square units.
- What is the area of the inner square?
 - What is the difference between the perimeters of the outer square and the inner square?
- Explain your work.



8. Expand and simplify this expression: $(2\sqrt{3} - 2\sqrt{5})(-2\sqrt{3} + 2\sqrt{5})$
Show your work.

9. Rectangles A and B are placed side by side to form a large rectangle as shown. Write, then simplify, a radical expression for the area of the large rectangle. Show your work.



10. Does this equation have a real root? Justify your answer.
 $\sqrt{4x - 7} = \sqrt{-2 + 5x}$