

Algebra CW

Practice Problems for Exam#3

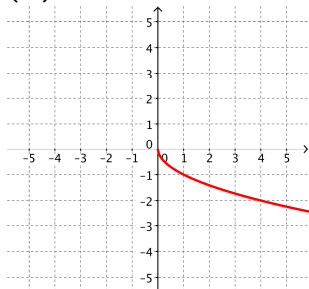
Show all your work on this handout. If you use additional sheets of paper, you must staple them together ("folding corners" will NOT be accepted). No work, no staple, NO POINT!

Your Name: _____

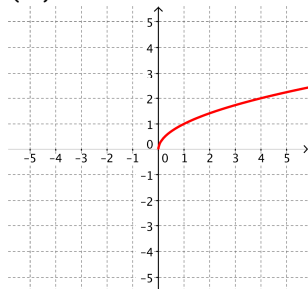
Date: _____

(Q1.) Which of the following is the graph for $y = -\sqrt{x}$?

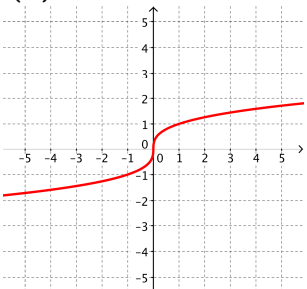
(A)



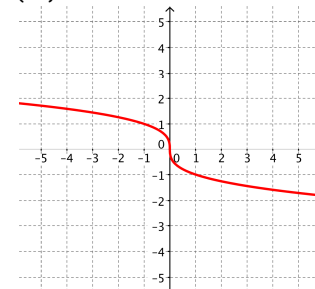
(B)



(C)



(D)



(Q2.) Determine the **domain** for $f(x) = \sqrt{18 - 6x}$

(A) $[-6, \infty)$

(B) $[3, \infty)$

(C) $(-\infty, 3]$

(D) $(-\infty, -6]$

(Q3.) Which of the following is an **approximation** for $\frac{15 - \sqrt[3]{7}}{2}$?

(A) 6.544

(B) 14.044

(C) 13.677

(D) 6.177

(E) 3.829

(Q4.) Evaluate $16^{\frac{1}{2}} + 4^{\frac{3}{2}}$

(A) 20

(B) 18

(C) 16

(D) 13

(E) 12

(Q5.) Simplify $\frac{\left(8x^{\frac{3}{2}}y^{-6}\right)^{-\frac{1}{3}}}{x^{\frac{1}{4}}}$

(A) $\frac{y^2}{2\sqrt[4]{x^3}}$

(B) $\frac{1}{8y^2\sqrt[4]{x}}$

(C) $\frac{1}{2\sqrt[6]{x}}$

(D) $\frac{3\sqrt[4]{x^3}}{y^2}$

(Q6.) Multiply $x^{\frac{1}{4}}\left(2x^{\frac{1}{2}} - x^{\frac{1}{4}}\right)$

(A) $\sqrt[3]{2x^4} - \sqrt{x}$

(B) $2\sqrt[3]{x^3} - \sqrt[3]{x}$

(C) $2\sqrt[4]{x^3} - \sqrt{x}$

(D) $2\sqrt[3]{x^4} - \sqrt{x}$

(Q7.) Simplify $\left(4x^5\right)^{\frac{2}{3}}$

(A) $4x^3\sqrt[3]{4x}$

(B) $2x^3\sqrt[3]{4x}$

(C) $2x^3\sqrt[3]{2x}$

(D) $8x^3\sqrt[3]{2x}$

(Q8.) Which of the following is **true**?

(A) $\frac{\sqrt{5}}{\sqrt{20}} = \frac{1}{2}$

(B) $\sqrt{20} \cdot \sqrt{5} = \sqrt{10}$

(C) $\sqrt{20} + \sqrt{5} = 5$

(D) $\sqrt{20} - \sqrt{5} = \sqrt{15}$

(E) $\left(\sqrt{5}\right)^2 = 25$

(Q9.) Simplify and combine $5x^3\sqrt{32} - 4\sqrt{18x^6} + x\sqrt{98x^4}$

(A) $2x^3\sqrt{14}$

(B) $15x^3\sqrt{2}$

(C) $24\sqrt{2x^3}$

(D) $-17x^3\sqrt{2} + 7x\sqrt{2x}$

(Q10.) Simplify and combine $-5\sqrt[3]{16} + 7\sqrt[3]{40} - \sqrt[3]{54}$

(A) $\sqrt[3]{3}$

(B) $-13\sqrt[3]{2} + 14\sqrt[3]{5}$

(C) $-18\sqrt[3]{2} + 56\sqrt[3]{5}$

(D) $22\sqrt[3]{7}$

(Q11.) Multiply and simplify $\left(5\sqrt[3]{6x^8y}\right)\left(\sqrt[3]{4x^5y^2}\right)$

(A) $2x^3y\sqrt[3]{xy}$

(B) $10x^3y\sqrt[3]{3xy}$

(C) $5x^3y\sqrt[3]{3xy}$

(D) $10x^4y\sqrt[3]{3x}$

(Q12.) Multiply and simplify $\sqrt{6x}\left(\sqrt{24x^3} - 2\sqrt{5}\right)$

(A) $6x^3\sqrt{3x} - 2x\sqrt{30}$

(B) $144x^4 - \sqrt{60x}$

(C) $144x^4 - 2\sqrt{5}$

(D) $4x^3\sqrt{3x} - 2x\sqrt{30}$

(E) $12x^2 - 2\sqrt{30x}$

(Q13.) $\left(\sqrt{x} - \sqrt{3}\right)^2 =$

(A) $x - 6\sqrt{x} + 9$

(B) $x - 6\sqrt{x} + 3$

(C) $x - 2\sqrt{3x} + 3$

(D) $x + 3$

(Q14.) Rationalize the denominator $\frac{12}{\sqrt{8}}$

(A) $6\sqrt{2}$

(B) $3\sqrt{2}$

(C) $\frac{\sqrt{8}}{8}$

(D) $\frac{3\sqrt{8}}{4}$

(Q15.) Rationalize the denominator $\frac{1}{\sqrt[3]{9}}$

(A) $\frac{\sqrt[3]{3}}{3}$

(B) $\frac{\sqrt[3]{9}}{9}$

(C) $\frac{\sqrt[3]{9}}{27}$

(D) $\frac{\sqrt[3]{9}}{3}$

(Q16.) Rationalize the denominator $\frac{5}{7-\sqrt{5}}$

(A) $\frac{35+5\sqrt{5}}{44}$

(B) $\frac{35-5\sqrt{5}}{44}$

(C) $\frac{5}{7} - \frac{5}{\sqrt{5}}$

(D) $\frac{35+5\sqrt{5}}{2}$

(Q17.) What is the **exact value** of b in the given right triangle?

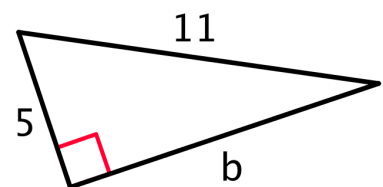
(A) $4\sqrt{6}$

(B) 6

(C) $9\sqrt{6}$

(D) $\sqrt{55}$

(E) 16



(Q18.) What is the **distance** between $(3, 4)$ and $(-5, 2)$?

- (A) $2\sqrt{17}$
- (B) 14
- (C) $\sqrt{14}$
- (D) $3\sqrt{14}$

(Q19.) Solve $3\sqrt{4x-1} = -15$

- (A) -31
- (B) 1
- (C) 6.5
- (D) -15
- (E) No Solution

(Q20.) Solve $3\sqrt[3]{4x-1} = -15$

- (A) -31
- (B) 1
- (C) 6.5
- (D) -5
- (E) No Solution

(Q21.) Solve $2x + 1 = \sqrt{10x + 5}$

- (A) $\frac{-1}{2}, 2$
- (B) 2 only
- (C) $\frac{-1}{4}, 4$
- (D) $\frac{-3}{4}$ only

(Q22.) Solve $\sqrt{5+x} + \sqrt{x} = 5$

- (A) 3
- (B) 4
- (C) -1, 11
- (D) No Solution

(Q23.) Solve: $(x+1)^{\frac{3}{2}} = 27$

- (A) 18
- (B) 8
- (C) 728
- (D) 9

(Q24.) Which of the following is the same as $\sqrt{-300}$?

- (A) $-3i\sqrt{10}$
- (B) $10i\sqrt{3}$
- (C) $-10i\sqrt{30}$
- (D) $10i\sqrt{-30}$
- (E) $-3\sqrt{10}$

(Q25.) Which of the following is **false**?

- (A) $i^0 = 1$
- (B) $i \cdot i = -1$
- (C) $i^6 = -1$
- (D) $i + i = 2i$
- (E) $\sqrt{i} = -1$

(Q26.) Evaluate $(3 - 7i)^2$

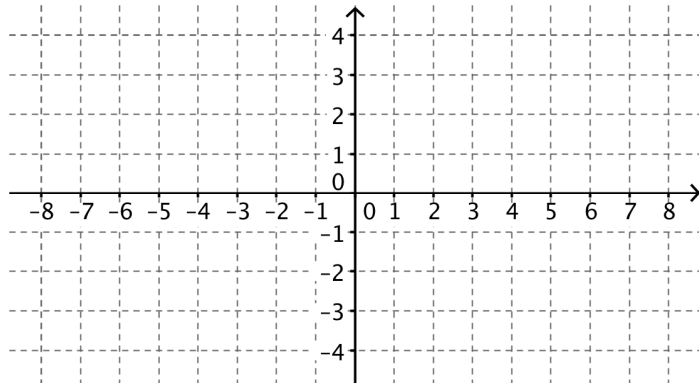
- (A) $58 - 42i$
- (B) $9 + 49i$
- (C) $9i - 49$
- (D) $-40 - 42i$
- (E) $9 - 21i$

(Q27.) Divide $\frac{8 - 3i}{8 + 3i}$

- (A) $1 - i$
- (B) $\frac{5i}{11}$
- (C) $\frac{55}{73} - \frac{48i}{73}$
- (D) $\frac{73}{55} - \frac{48i}{55}$
- (E) $\frac{64}{73} - \frac{9i}{73}$

(Q28.) Fill in the following table and graph $y = 2 + x^{\frac{1}{3}}$

x	$y = 2 + x^{\frac{1}{3}}$
-8	
-1	
0	
1	
8	



(Q29.) Solve $\sqrt{y+4} = \sqrt{y+20} - 2$

(Q30.) Simplify and combine $5x\sqrt{8y^3} + 3y\sqrt{32x^2y} - 5x\sqrt{50y^3}$