Answer Key

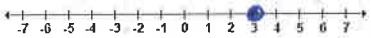
Real Numbers and Radicals - Practice Test

Name:
Block:

1. Identify the subsets these numbers belong to and place them on the number line.

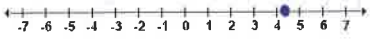
a) $\sqrt{9} = 3$

Q, Z, W, N



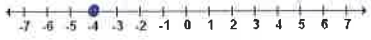
b) 4.26385...

$\overline{Q}$



c) -4

Q, Z



2. Estimate the value of the radical using two perfect squares.

a) $\sqrt{12}$

$\sqrt{9}$ $\sqrt{12}$ $\sqrt{16}$

3 ≈3.3 4

b) $\sqrt{72}$

$\sqrt{64}$ $\sqrt{72}$ $\sqrt{81}$

8 ≈8.4 9

c) $\sqrt{125}$

$\sqrt{121}$ $\sqrt{125}$ $\sqrt{144}$

11 ≈11.1 12

3. Write as a products of prime factors.

a) 20

10 × 2

5 × 2

$20 = 2^2 \cdot 5$

b) 150

15 × 10

5 × 3 × 2 × 5

$150 = 2 \cdot 3 \cdot 5^2$

c) 240

24 × 10

6 × 4 × 5 × 2

2 × 3 × 2 × 2

$240 = 2^4 \cdot 3 \cdot 5$

4. Find the GCF.

a) 20, 150

$20 = 2^2 \cdot 5$

$150 = 2 \cdot 3 \cdot 5^2$

GCF = 2 · 5

= 10

b) 150, 240

$150 = 2 \cdot 3 \cdot 5^2$

$240 = 2^4 \cdot 3 \cdot 5$

GCF = 2 · 3 · 5

= 30

c) 20, 150, 240

$20 = 2^2 \cdot 5$

$150 = 2 \cdot 3 \cdot 5^2$

$240 = 2^4 \cdot 3 \cdot 5$

GCF = 2 · 5

= 10

5. Find the LCM

a) 20, 150

$20 = 2^2 \cdot 5$

$150 = 2 \cdot 3 \cdot 5^2$

$LCM = 2^2 \cdot 3 \cdot 5^2$

$= 300$

b) 150, 240

$150 = 2 \cdot 3 \cdot 5^2$

$240 = 2^4 \cdot 3 \cdot 5$

$LCM = 2^4 \cdot 3 \cdot 5^2$

$= 1200$

c) 20, 150, 240

$20 = 2^2 \cdot 5$

$150 = 2 \cdot 3 \cdot 5^2$

$240 = 2^4 \cdot 3 \cdot 5$

$LCM = 2^4 \cdot 3 \cdot 5^2$

$= 1200$

6. Evaluate the following radicals.

a) $\sqrt{49} = \sqrt{7 \cdot 7}$

$= 7$

b) $-\sqrt{81} = -\sqrt{9 \cdot 9}$

$= -9$

c) $\sqrt{4} = \sqrt{2 \cdot 2}$

$= 2$

7. Multiply the following radicals.

a) $\sqrt{5} \times \sqrt{2} = \sqrt{5 \times 2}$

$\sqrt{10}$

b) $-\sqrt{17} \times \sqrt{3}$

$= -\sqrt{17 \times 3}$

$= -\sqrt{51}$

c) $\sqrt{7} \times -\sqrt{2}$

$= -\sqrt{2 \times 7}$

$= -\sqrt{14}$

8. Write as a mixed radical.

a) $\sqrt{50} = \sqrt{2 \cdot 5 \cdot 5}$

$= 5\sqrt{2}$

b) $\sqrt{420} = \sqrt{2^2 \cdot 3 \cdot 5 \cdot 7}$

$= 2\sqrt{3 \cdot 5 \cdot 7}$

$= 2\sqrt{105}$

c) $-\sqrt{150} = -\sqrt{2 \cdot 3 \cdot 5^2}$

$= -5\sqrt{2 \cdot 3}$

$= -5\sqrt{6}$

9. Write as an entire radical.

a) $3\sqrt{6} = \sqrt{3 \cdot 3 \cdot 6}$

$= \sqrt{54}$

b) $-2\sqrt{18} = -\sqrt{2 \cdot 2 \cdot 18}$

$= -\sqrt{72}$

c) $4\sqrt{23} = \sqrt{4 \cdot 4 \cdot 23}$

$= \sqrt{368}$