Unit 1 REVIEW

Convert the following units.

1. 35 feet into yards.

$\frac{35\ ft}{1} \times \frac{1\ yd}{3\ ft} = \frac{35}{3} = 11.7\ yd$

2. 3 miles into inches.

$\frac{3\ mi}{1} \times \frac{5280\ ft}{1\ mi} \times \frac{12\ in}{1\ ft} = 190{,}080\ in$

3. 12 days into seconds.

$\frac{12\ d}{1} \times \frac{24\ hr}{1\ d} \times \frac{60\ min}{1\ hr} \times \frac{60\ sec}{1\ min} = 1{,}036{,}800\ sec$

4. 4 miles per hour into feet per minute.

$\frac{4\ mi}{1\ hr} \times \frac{1\ hr}{60\ min} \times \frac{5280\ ft}{1\ mi} = \frac{21120}{60} = 352\ ft/min$

Metric System.

5. What are the three units used in the metric system? meters, liters, grams

6. Fill in the blanks with the appropriate abbreviations.

K H Da **units** D C M

7. 12 mL = 0.000012 kL

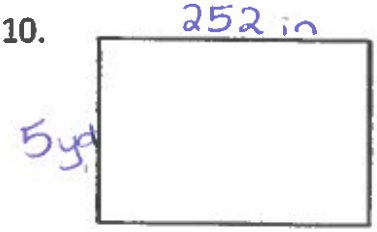
8. 1.3g = 130 cg

9. 160m = 0.16 km

Find the perimeter and area of each rectangle. Be sure to convert to the appropriate units first!!!

P = 2l + 2w **A = lw**

10.



Area: 35 yd^2

Perimeter: 24 yd

11. A square has side lengths 5,000 mm. Find the perimeter and area in ***meters***.

5m

Area: 25 m^2

Perimeter: 20 m

12. John rode 2 kilometers on his bike. His sister Sally rode 3000 meters on her bike. Who rode the farthest and how much farther did they ride in km?

3 km

Sally rode more by 1 km

Conversions

1 hour = 3600 seconds
1 meter = 3.28 feet
1 kg = 2.2 lbs
1 m/s = 2.2 miles/hour

1 mile = 5280 feet
1 km = 0.62 miles
1 lb = 0.45 kg
1 foot = 12 inches

1 yard = 3 feet
1 light second = 300,000,000 meters
1 quart = 0.946 liters
1 inch = 2.54 cm = 25.4 mm

2

Simplify the following radical expressions. State if the answer is Rational or Irrational.

13. $-\sqrt{121}$

-11

R

14. $\sqrt{\frac{36}{81}} = \frac{6}{9} = \frac{2}{3}$

R

15. $\sqrt{\frac{3}{81}} = \frac{\sqrt{3}}{9}$

I

16. $5\sqrt{4} + 3\sqrt{36}$

$5(2) + 3(6)$

$10 + 18$

28 R

17. $\sqrt{\frac{1}{4}}(2\sqrt{16} - \sqrt{9})$

$\frac{1}{2}(2 \cdot 4 - 3)$

$\frac{1}{2}(8-3)$

2.5 R

18. $\sqrt{75} = \sqrt{25 \cdot 3}$

$5\sqrt{3}$ I

19. $-\sqrt{180}$

$-\sqrt{36 \cdot 5}$

$-6\sqrt{5}$ I

20. $\sqrt{125} = \sqrt{25 \cdot 5}$

$= 5\sqrt{5}$ I

21. $5\sqrt{32} = 5\sqrt{16 \cdot 2}$

$5 \cdot 4\sqrt{2} = 20\sqrt{2}$

I

22. $-\sqrt{2} \cdot \sqrt{50}$

$-\sqrt{100}$

-10 R

23. $2\sqrt{3} \cdot \sqrt{3} = 2\sqrt{9}$

$2 \cdot 3 = 6$

R

24. $\sqrt{\frac{4}{3}} \cdot \sqrt{\frac{4}{27}} = \sqrt{\frac{16}{81}}$

$\frac{4}{9}$ R

25. $3\sqrt{12} = 3\sqrt{4 \cdot 3}$

$3 \cdot 2\sqrt{3} = 6\sqrt{3}$

I

26. $\sqrt{54} = \sqrt{9 \cdot 6}$

$= 3\sqrt{6}$

I

27. $-9\sqrt{72} = -9\sqrt{36 \cdot 2}$

$= -9 \cdot 6\sqrt{2} = -54\sqrt{2}$

I

28. **Is an irrational number multiplied by an irrational number always, sometimes, or never rational? Explain your answer and provide examples.**

Sometimes

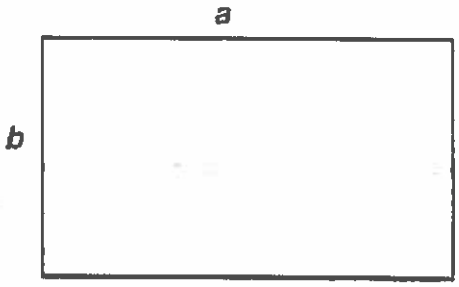
$\sqrt{2} \times \sqrt{2} = \sqrt{4} = 2$

$\sqrt{2} \times \pi = 4.44\ldots$ ← nonrepeating and non-terminating

20. The rectangle to the right has sides lengths a and b.

$A = l \cdot w$ $\quad$ $P = l + l + w + w$

OR $P = 2l + 2w$



Is it possible for the perimeter and area to both rational numbers? If you think it is possible, give values for a and b. If you think it is NOT possible, explain why no values for a and b will work.

yes

$a = 5, b = 4$

$A = 5 \times 4 = 20$

$P = 5 + 5 + 4 + 4 = 18$

4