

6th Grade

Summer Math Enrichment

REVIEW: Rounding Whole Numbers

Key Concept and Vocabulary

round up

Decision digit
is 5, 6, 7, 8,
or 9.

round down

Decision digit
is 0, 1, 2, 3,
or 4.



Visual Model

To round to the *nearest ten*, choose the closest multiple of ten.



27 is closer to 30 than to 20. So, 27 rounds to 30.

Skill Examples

1. To the *nearest ten*:
113 rounds to 110.
2. To the *nearest hundred*:
182 rounds to 200.
3. To the *nearest thousand*:
4506 rounds to 5000.

Application Example

4. An appraiser adds the areas of the rooms in a house and gets 1548 square feet. Estimate this to the nearest ten square feet.
To the *nearest ten*: 1548 rounds to 1550.

The house has about 1550 square feet.

REVIEW: Multiplying Whole Numbers

Key Concept and Vocabulary

factors

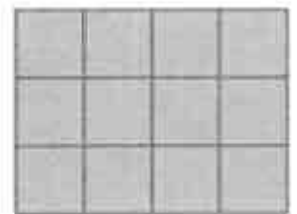
product

$$3 \cdot 4 = 12$$



Visual Model

A rectangle that is 3 units by 4 units has an area of 12 square units.



$$\begin{aligned} \text{Area} &= 3 \times 4 \\ &= 12 \text{ square units} \end{aligned}$$

Skill Examples

1. $6 \cdot 7 = 42$
2. $0 \times 5 = 0$
3. $8 \cdot 1 = 8$
4. $(9)(12) = 108$
5. $15 \times 20 = 300$

Application Example

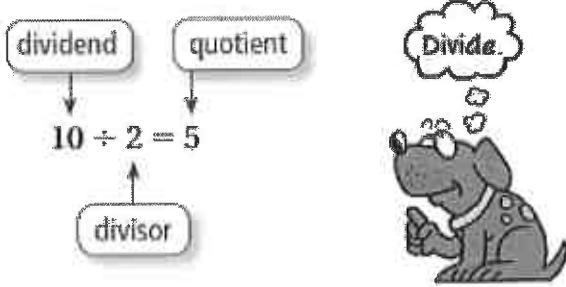
6. Find the area of a rectangular lot that is 20 yards wide and 35 yards long.

$$\begin{aligned} \text{Area} &= (\text{length})(\text{width}) \\ &= 35 \cdot 20 \\ &= 700 \text{ yd}^2 \end{aligned}$$

The area is 700 square yards.

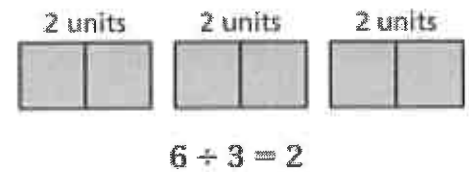
REVIEW: Dividing Whole Numbers

Key Concept and Vocabulary



Visual Model

If you divide 6 units into 3 equal parts, each part will have 2 units.



Skill Examples

- $42 \div 6 = 7$
- $\frac{65}{13} = 65 \div 13 = 5$
- $$\begin{array}{r} 13 \\ 15 \overline{)195} \\ \underline{15} \\ 45 \\ \underline{45} \\ 0 \end{array}$$
 $\therefore 195 \div 15 = 13$

Application Example

- Six people find a treasure worth \$12,300. If each person receives an equal share, how much does each person get?

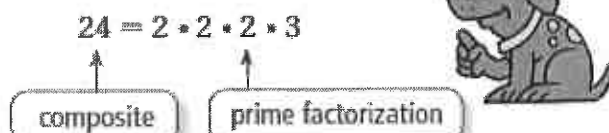
$$\$12,300 \div 6 = \$2050$$

- \therefore Each person gets \$2050.

REVIEW: Prime and Composite Numbers

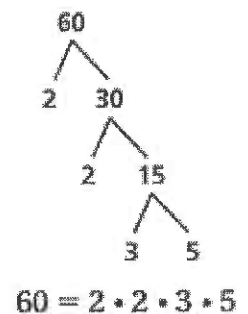
Key Concept and Vocabulary

A **prime number** has only 1 and itself as factors. The first 5 prime numbers are 2, 3, 5, 7, and 11.



Visual Model

You can use a **factor tree** to find the prime factorization of a composite number.



Skill Examples

Prime Factorization

- $30 = 2 \cdot 3 \cdot 5$
- $42 = 2 \cdot 3 \cdot 7$
- $81 = 3 \cdot 3 \cdot 3 \cdot 3$
- $91 = 7 \cdot 13$
- $89 = 89$ (Prime)

Application Example

- You get a paycheck every 2 weeks. Your annual salary is \$30,000. Can you get the same amount for each paycheck?

$$30,000 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot 5 \cdot 5 \cdot 5$$

- \therefore 30,000 is not divisible by 13, so you cannot have 26 paychecks of equal size.

REVIEW: Order of Operations

Key Concept and Vocabulary

“Please Excuse My Dear Aunt Sally”

- 1st **P**arentheses
- 2nd **E**xponents
- 3rd **M**ultiplication and **D**ivision (from left to right)
- 4th **A**ddition and **S**ubtraction (from left to right)

Simplify $4^2 \div 2 + 3(9 - 5)$.

$$\begin{aligned}4^2 \div 2 + 3(9 - 5) &= 4^2 \div 2 + 3 \cdot 4 \\ &= 16 \div 2 + 3 \cdot 4 \\ &= 8 + 12 \\ &= 20\end{aligned}$$

Order of Operations



Skill Examples

- $18 \div 2 - 4 = 9 - 4 = 5$
- $12 \cdot (6 - 2) = 12 \cdot 4 = 48$
- $14 \cdot 3 - 19 = 42 - 19 = 23$
- $20 \div 10 + 21 \cdot 5 = 2 + 105 = 107$
- $(2 + 3)^2 - 5 = 25 - 5 = 20$

Application Example

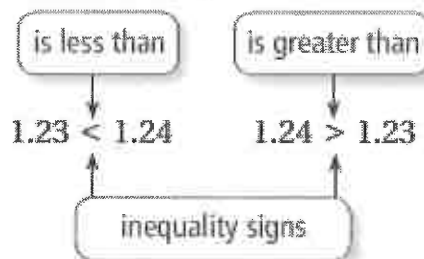
6. At a museum, 4 adults pay \$5 each and 6 children pay \$3 each. What is the total cost of the tickets?

$$\begin{aligned}4 \cdot 5 + 6 \cdot 3 &= 20 + 18 \\ &= 38\end{aligned}$$

∴ The total cost is \$38.

REVIEW: Comparing and Ordering Decimals

Key Concept and Vocabulary



Order Decimals.



Visual Model

Number Line



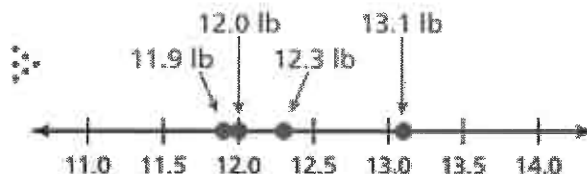
$1.23 < 1.24$ because 1.23 is to the left of 1.24 on the number line.

Skill Examples

- $34.07 > 30.47$
- $12.35 < 12.351$
- $17,056.4 > 17,055.9$
- $0.004 < 0.030$
- $0.1003 > 0.0999$

Application Example

6. Order the weights from least to greatest:
12.3 lb, 11.9 lb, 12.0 lb, 13.1 lb.



REVIEW: Rounding Decimals

Key Concept and Vocabulary

Round up.

Decision digit
is 5, 6, 7, 8,
or 9.

Round down.

Decision digit
is 0, 1, 2, 3,
or 4.



Visual Model

Round to the *nearest tenth*.



3.63 rounds to 3.6 because
3.63 is closer to 3.6 than to 3.7.

Skill Examples

- To the *nearest tenth*:
4.78 rounds to 4.8. Round up.
- To the *nearest hundredth*:
0.143 rounds to 0.14. Round down.
- To the *nearest thousandth*:
0.0029 rounds to 0.003. Round up.

Application Example

- Gasoline costs \$2.899 per gallon. Round this price to the nearest cent.

To the *nearest cent*: 2.899 rounds to 2.90.
- The gasoline costs about \$2.90 per gallon.

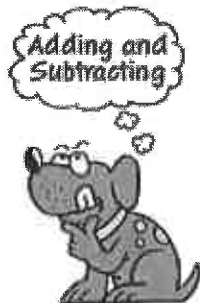
REVIEW: Adding and Subtracting Decimals

Key Concept and Vocabulary

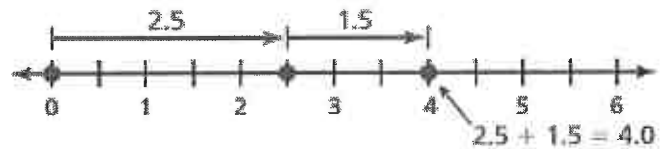
$$\begin{array}{r} 5.7 \\ + 3.36 \\ \hline 9.06 \end{array}$$

$$\begin{array}{r} 12.72 \\ - 3.84 \\ \hline 8.88 \end{array}$$

Align on decimal point.



Visual Model

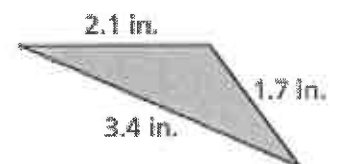


Skill Examples

- $$\begin{array}{r} 134.12 \\ + 25.485 \\ \hline 159.605 \end{array}$$
- $$\begin{array}{r} 0.135 \\ + 0.14 \\ \hline 0.275 \end{array}$$
- $$\begin{array}{r} 32.000 \\ - 9.451 \\ \hline 22.549 \end{array}$$
- $$\begin{array}{r} 1.405 \\ - 0.55 \\ \hline 0.855 \end{array}$$

Application Example

- Find the perimeter of the triangle.



$$2.1 + 1.7 + 3.4 = 7.2$$

- The perimeter is 7.2 inches.

REVIEW: Area

Key Concept and Vocabulary

Rectangle: $A = bh$

Parallelogram: $A = bh$

Triangle: $A = \frac{1}{2}bh$

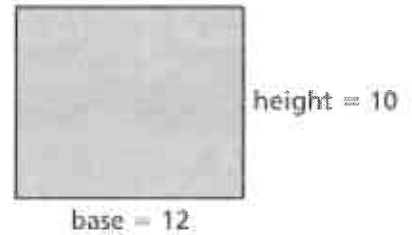
Trapezoid: $A = \frac{1}{2}(B + b)h$



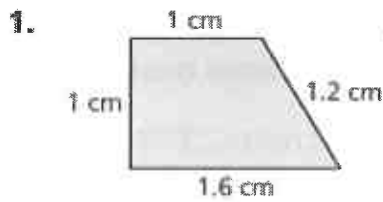
Visual Model

Area of a Rectangle:

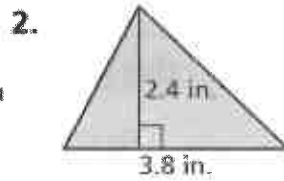
$$\begin{aligned} A &= bh \\ &= (12)(10) \\ &= 120 \text{ square units} \end{aligned}$$



Skill Examples



$$\begin{aligned} A &= \frac{1}{2}(1.6 + 1)(1) \\ &= 1.3 \text{ cm}^2 \end{aligned}$$

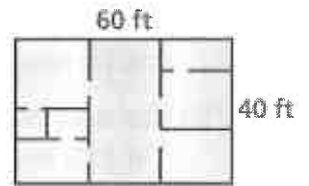


$$\begin{aligned} A &= \frac{1}{2}(3.8)(2.4) \\ &= 4.56 \text{ in.}^2 \end{aligned}$$

Application Example

3. Find the area of the apartment.

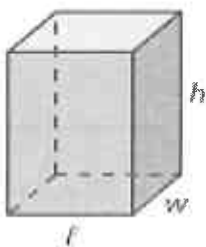
$$\begin{aligned} A &= 60 \cdot 40 \\ &= 2400 \text{ ft}^2 \end{aligned}$$



∴ The area is 2400 square feet.

REVIEW: Volumes of Prisms

Key Concept and Vocabulary



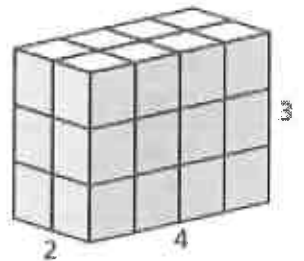
Base
↓
 $V = Bh$
 $= lwh$



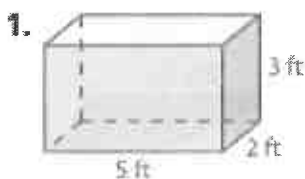
Visual Model

Volume of a Rectangular Prism

$$\begin{aligned} V &= 2 \cdot 4 \cdot 3 \\ &= 24 \text{ units}^3 \end{aligned}$$



Skill Example

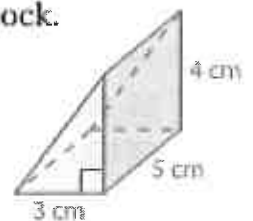


$$\begin{aligned} V &= 5 \cdot 2 \cdot 3 \\ &= 30 \text{ ft}^3 \end{aligned}$$

Application Example

2. Find the volume of the block.

$$\begin{aligned} V &= Bh \\ &= \left(\frac{1}{2} \cdot 3 \cdot 4\right) \cdot 5 \\ &= 30 \text{ cm}^3 \end{aligned}$$



∴ The volume is 30 cubic centimeters.

Name _____ Date _____

**Pre-
Course**

Sixth Grade Mathematics Summer Packet

Estimate the quotient.

1. $59 \div 5$ 2. $78 \div 8$ 3. $101 \div 4$

Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

4. Your school's science club is making gift baskets to sell. The club has 350 individually wrapped soaps to put into the gift baskets. The club wants to put 3 soaps in each gift basket. How many gift baskets can the club make?

Divide.

5. $322 \div 14$

6. $247 \div 19$

7. $154 \div 22$

Answers

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. See left.

18. See left.

19. See left.

20. See left.

21. See left.

22. See left.

~~7-151-22~~
Add or subtract.

8. $2.3 + 3.4$

9. $5.8 - 2.1$

10. $4.2 - 1.9$

11. $\frac{3}{4} - \frac{1}{3}$

12. $\frac{3}{8} + \frac{7}{8}$

13. $\frac{4}{9} + \frac{5}{6}$

Estimate the sum or difference to the nearest whole number.

14. $3.17 - 1.8$

15. $5.23 + 6.8$

16. $8.14 + 7.25$

Complete the statement with <, >, or =.

17. 1.007 _____ 1.004

18. 3.052 _____ 3.055

19. 4.61 _____ 0.461

20. 5.750 _____ 5.75

21 and 22 on next page.

21. $7.34 \underline{\hspace{1cm}} 7.734$

22. $9.976 \underline{\hspace{1cm}} 9.76$

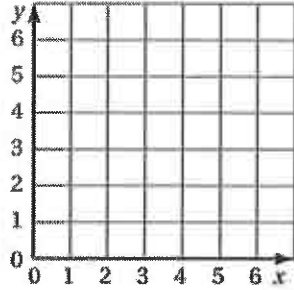
Answers

Plot the ordered pair in the coordinate plane.

23. $(2, 5)$

24. $(6, 1)$

25. $(0, 4)$



23. See left.

24. See left.

25. See left.

26. _____

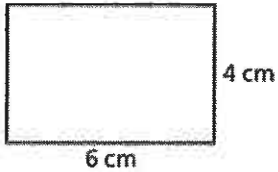
27. _____

28. _____

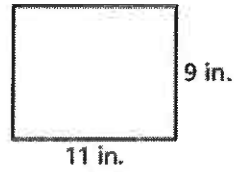
29. _____

Find the area of the rectangle.

26.



27.

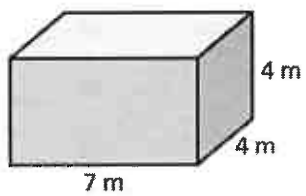


28. Your house is 1030 meters from school. Your friend's house is 1.5 kilometers from school. Whose house is farther from school?

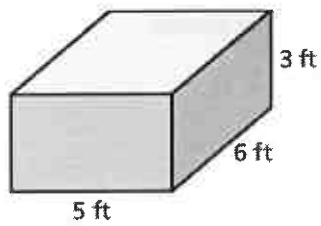
29. How many vertices does a cube have?

Find the volume of the rectangular prism.

30.



31.



Answers

30. _____

31. _____

32. _____

33. _____

34. _____

35. _____

36. _____

37. _____

38. _____

Tell whether the number is *prime* or *composite*. Show why you think so.

32. 532

33. 87

34. 41

Multiply or divide.

35. 16×9

36. 20×17

37. $135 \div 9$

Simplify the expression.

38. $15 - 4 \times 3$

Answers

Simplify the expression.

39. $2 \times (8 + 7)$

39. _____

40. _____

41. See left.

40. $(9 + 9) + 7 \times 2$

41. The data show a class enrollment over a five-year period. Make a line graph to represent

Year	1	2	3	4	5
Class Enrollment	22	24	23	20	19

