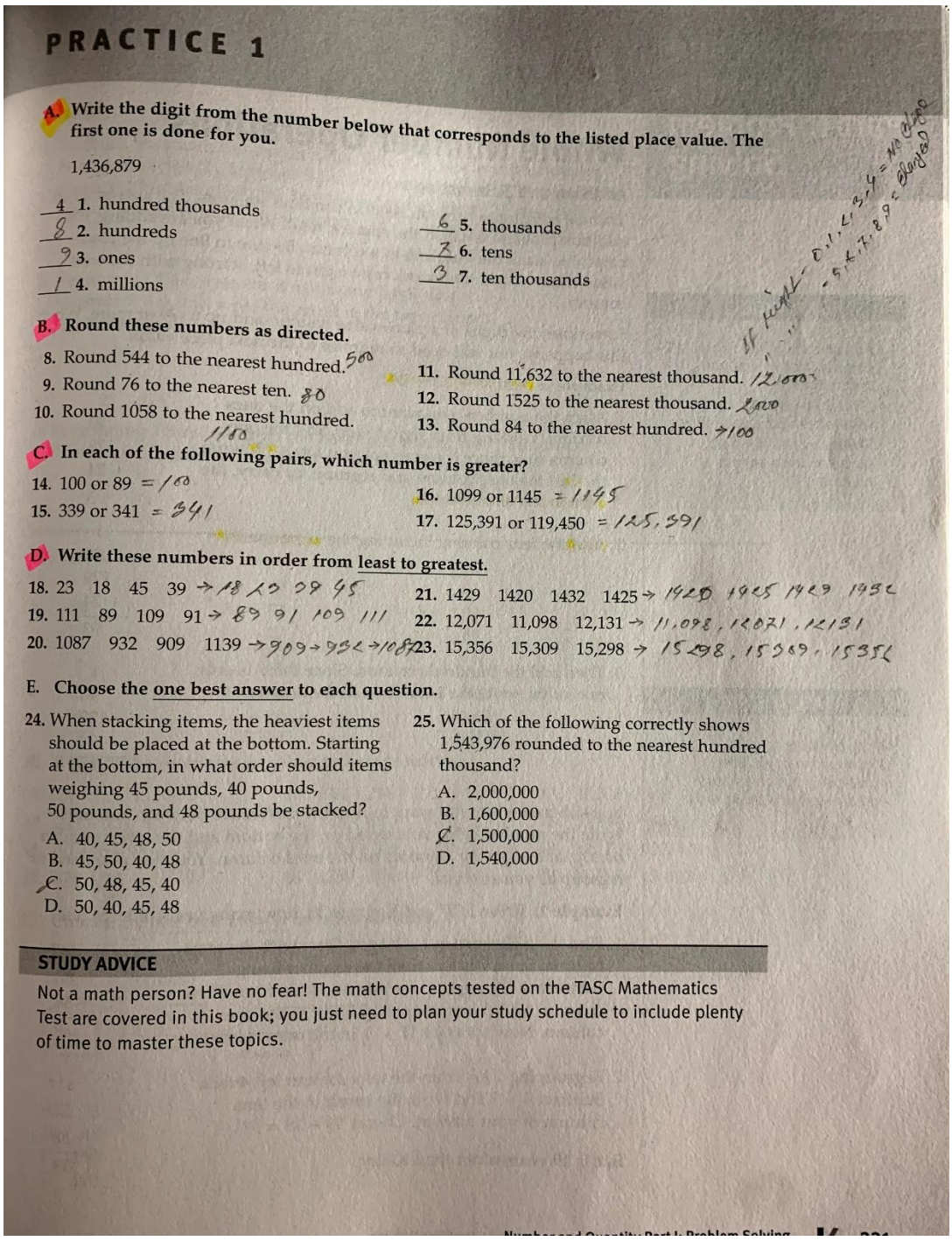
Md Islam
TKH Vestibule Data Science in 2021
Module 6
Due date: 08/13/21

Section 1: Numbers and Quantity: Part 1

Lesion 1: Practice 1 (all questions)



PRACTICE 1

A. Write the digit from the number below that corresponds to the listed place value. The first one is done for you.

1,436,879

4 1. hundred thousands
8 2. hundreds
9 3. ones
1 4. millions
6 5. thousands
3 6. tens
3 7. ten thousands

B. Round these numbers as directed.

8. Round 544 to the nearest hundred. 500
9. Round 76 to the nearest ten. 80
10. Round 1058 to the nearest hundred. 1100
11. Round 11,632 to the nearest thousand. 12,000
12. Round 1525 to the nearest thousand. 2000
13. Round 84 to the nearest hundred. →100

C. In each of the following pairs, which number is greater?

14. 100 or 89 = 100
15. 339 or 341 = 341
16. 1099 or 1145 = 1145
17. 125,391 or 119,450 = 125,391

D. Write these numbers in order from least to greatest.

18. 23 18 45 39 → 18 23 39 45
19. 111 89 109 91 → 89 91 109 111
20. 1087 932 909 1139 → 909 → 932 → 1087
21. 1429 1420 1432 1425 → 1420 1425 1429 1432
22. 12,071 11,098 12,131 → 11,098, 12071, 12131
23. 15,356 15,309 15,298 → 15298, 15309, 15356

E. Choose the one best answer to each question.

24. When stacking items, the heaviest items should be placed at the bottom. Starting at the bottom, in what order should items weighing 45 pounds, 40 pounds, 50 pounds, and 48 pounds be stacked?
A. 40, 45, 48, 50
B. 45, 50, 40, 48
C. 50, 48, 45, 40
D. 50, 40, 45, 48

25. Which of the following correctly shows 1,543,976 rounded to the nearest hundred thousand?
A. 2,000,000
B. 1,600,000
C. 1,500,000
D. 1,540,000

STUDY ADVICE

Not a math person? Have no fear! The math concepts tested on the TASC Mathematics Test are covered in this book; you just need to plan your study schedule to include plenty of time to master these topics.

Lesion 2: Practice 2.1 and 2.2 (all questions)

PRACTICE 2.1

Example 3: Find the difference between 205 and 67.

1. Subtract. Start with the ones column. Since 5 is less than the number being subtracted (7), regroup. Since there are 0 tens in the tens column, regroup 1 hundred from the hundreds column. From 10 tens, regroup 1 ten to the ones column. Now subtract 15 – 7 in the ones column.

$$\begin{array}{r} {\scriptstyle 9} \\ 1\,\not{1}\,\not{0}\,{\scriptstyle 15} \\ \not{2}\,\not{0}\,\not{5} \\ -\ 6\ 7 \\ \hline 8 \end{array}$$

2. Regrouping 1 ten from the tens column left 9 tens. Subtract 9 – 6, and write the result in the tens column of your answer.

$$\begin{array}{r} {\scriptstyle 9} \\ 1\,\not{1}\,\not{0}\,{\scriptstyle 15} \\ \not{2}\,\not{0}\,\not{5} \\ -\ 6\ 7 \\ \hline 3\ 8 \end{array}$$

3. Regrouping 1 hundred from the hundreds column left 1 hundred. Subtract the hundreds column: 1 – 0. Check: 138 + 67 = 205.

$$\begin{array}{r} {\scriptstyle 9} \\ 1\,\not{1}\,\not{0}\,{\scriptstyle 15} \\ \not{2}\,\not{0}\,\not{5} \\ -\ 6\ 7 \\ \hline 1\ 3\ 8 \end{array}$$

A. Solve.

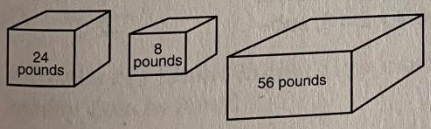
1. $\begin{array}{r} 54 \\ +\,23 \\ \hline 77 \end{array}$
2. $\begin{array}{r} 46 \\ +\,54 \\ \hline 100 \end{array}$
3. $\begin{array}{r} 73 \\ -\,21 \\ \hline 52 \end{array}$
4. $\begin{array}{r} 55 \\ -\,19 \\ \hline 36 \end{array}$
5. $\begin{array}{r} 105 \\ +\,85 \\ \hline 190 \end{array}$
6. $\begin{array}{r} 2386 \\ +\,1692 \\ \hline 4078 \end{array}$
7. $\begin{array}{r} 100 \\ -\,57 \\ \hline 43 \end{array}$
8. $\begin{array}{r} 2500 \\ -\,383 \\ \hline 2117 \end{array}$

B. Rewrite the problems in columns before solving.

9. 20 + 12 + 33 = 65
10. 245 – 131 = 114
11. 30 + 75 + 75 = 180
12. 378 – 85 = 293
13. 144 + 238 + 101 = 483
14. 545 – 89 = 456
15. 2095 + 324 = 2419
16. 1250 – 350 = 900
17. 10,326 + 982 = 11308
18. 15,890 – 705 = 15185
19. 108,755 + 22,442 = 131197
20. 44,789 – 13,890 = 30899

C. Choose the one best answer to each question.

21. What is the total weight of the boxes below, in pounds?



A. 78
B. 88
C. 150
D. 160

22. Celia's share for lunch is $7. If she pays with a $20 bill, how much change should she get?

A. $3
B. $7
C. $13
D. $27

PRACTICE 2.2

2. Continue dividing. Bring down the 0 from the tens place in the dividend. How many times does 4 go into 20? Write the answer 5 directly above the second 0 in the dividend. Since $4 \times 5 = 20$, subtract $20 - 20 = 0$. Bring down the 6 from the ones place in the dividend. How many times does 4 go into 6? Write the answer 1 above the 6 in the dividend. Since $4 \times 1 = 4$, subtract $6 - 4 = 2$. Write the **remainder** of 2 as part of the quotient.

$$\begin{array}{r} 251 \text{ r2} \\ 4\overline{)1006} \\ -8 \\ \hline 20 \\ -20 \\ \hline 06 \\ -4 \\ \hline 2 \end{array}$$

By reviewing and memorizing multiplication tables, you can save yourself precious time on the TASC Mathematics Test. Multiplication tables can be found online or at your local library.

A. Solve.

1. 121×4 = 484
2. 250×4 = 1000
3. 342×8 = 2736
4. $5\overline{)65}$ = 13
5. $7\overline{)735}$ = 105
6. $9\overline{)189}$ = 21
7. 45×30 = 1350
8. 105×25 = 2625
9. 211×16 = 3376
10. $10\overline{)280}$ = 28
11. $15\overline{)225}$ = 15
12. $19\overline{)114}$ = 6

B. Solve. If multiplying more than two numbers, find the product of two numbers before multiplying by the next number, and so on.

13. $50 \times 5 =$ 250
14. $179 \div 4 =$ 44.75
15. $5 \times 6 \times 10 =$ 300
16. $1004 \div 5 =$ 200.8
17. $25 \times 3 \times 2 =$ 150
18. $7452 \times 9 =$ 67068
19. $10{,}760 \div 20 =$ 538
20. $12 \times 8 \times 4 =$ 384
21. $144{,}140 \div 12 =$ 12011.67

C. Choose the one best answer to each question.

22. A fruit juice container holds 16 servings. If the serving size is 6 ounces, how many ounces does the container hold in all?

A. 10
B. 22
C. 76
~~D.~~ 96

23. A cashier has fifteen $5 bills. How much money does he have?

A. $15
B. $25
~~C.~~ $75
D. $150

24. How many 2-foot lengths can be cut from the string shown below?

12 ft

A. 2
~~B.~~ 6
C. 12
D. 24

Lesion 3: Practice 3.1 & 3.2 (all questions)

PRACTICE 3.1

Example 2: Subtract 3 – 8.

1. Change the operation symbol and the sign of the number you are subtracting. — 3 – 8 becomes 3 + (–8)
2. Add. — 3 + (–8) = –5

You can use the same rules to combine several signed numbers.

Example 3: (–5) + 6 – 4 – (–2) = ?

1. Rewrite each subtraction as addition. — (–5) + 6 + (–4) + 2
2. Add the positive terms: — 6 + 2 = 8

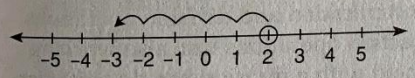
   Add the negative terms. — –5 + (–4) = –9
3. Combine the results. — 8 + –9 = –1

A. Solve.

1. 8 + (–3) = 5
2. 50 – 5 = 45
3. 11 – (–2) = 13
4. –1 + 2 = 1
5. –4 – (–5) = 1
6. 8 – (–2) = 10
7. 6 – 9 = -3
8. 2 + 11 = 13
9. (–7) – (–3) = -4
10. (–4) + 6 = 2
11. –15 + (–7) = -22
12. 36 – 4 = 32
13. –60 – (–10) = -50
14. –5 – 6 = -11
15. 12 + 13 = 25
16. –55 + 20 = -35
17. 7 + (–3) + (–5) – 10 = -1
18. 66 + (–22) – 33 = 11
19. –14 – (–6) + 18 = 10
20. 80 – (–15) – 20 = 75
21. 6 – (–3) + (–5) + 8 = 12
22. –23 + (–11) – (–15) + 21 = 2
23. 3 + 9 – 5 + 12 – 9 – 11 = -1
24. –7 – 20 – (–14) = -13

B. Choose the one best answer to each question.

Question 25 refers to the following number line.



25. The number line above shows which of the following expressions?
   A. 2 + (–3) = -1
   B. 2 + (–5) = -3
   C. –3 + 2 = -1
   D. –3 – (+2) = -5

26. At noon, the temperature in the high desert was 92°F. A scientist observed the following temperature changes over the course of the next two hours: +12°, –5°, +6°, –3°, and +13°. What was the temperature in degrees Fahrenheit at the end of the two-hour period?
   A. 95°
   B. 103°
   C. 115° 118
   D. 131°

STUDY ADVICE

Number lines are very useful for understanding numerical information. They help you visualize the relationship between numbers and quantities. To review and learn about other uses for number lines, turn to pages 242 and 282.

PRACTICE 3.2

A. Solve. You MAY NOT use a calculator.

1. $(5)(4) = 20$
2. $(7)(-3) = -21$
3. $(-8)(6) = -48$
4. $(-2)(-9) = 18$
5. $(-10)(1) = -10$
6. $9 \div 3 = 3$
7. $12 \div (-4) = -3$
8. $-25 \div 5 = -5$
9. $(-18) \div (-9) = 2$
10. $\frac{40}{-8} = -5$
11. $(14)(-2) = -28$
12. $(-75) \div 25 = -3$
13. $13 \div (-13) = -1$
14. $(-5)(15) = -75$
15. $\frac{18}{3} = 6$

B. Solve. You MAY use a calculator.

16. $\frac{25(4)}{-5} = -20$
17. $(-3)(-5)(2)(-10) = -300$
18. $20 \div (-5) \div (-2) = 2$
19. $\frac{6(5)}{(-3)(2)} = -5$
20. $(-11)(2)(-5)(6) = 660$
21. $(12)(-2) \div (-2) = 12$
22. $(-4)(-6)(-5) = -120$
23. $50 \div (2)(-5) = -5$
24. $(-1)(2)(-3)(2)(-1) = -12$
25. $\frac{(3)(-4)(2)(5)}{-6} = 20$
26. $\frac{4(-4)}{-8(-2)} = -1$
27. $(-5)(-2)(0)(-1) = 0$

C. Choose the one best answer to each question.

28. Janice is creating a computer spreadsheet. A portion of her work is shown below.

	A	B	C
1	−3	4	7
2	2	−5	−8
3	−1	3	−2

Using the information from the spreadsheet, what is the value of the expression A1*C1*A3/(B3*A3)? (*Hint*: In a spreadsheet, the symbol * means multiplication.)

A. −21
B. −7
C. −1/7
D. 21

29. The product of 2 and 8 is divided by −8. Which of the following expressions could be used to find the value of the statement?

A. $\frac{\frac{2}{8}}{-8}$
B. $2(8)(-8)$
C. $\frac{2(8)}{(-8)}$
D. $\frac{2(-8)}{8}$

30. Which of the following is a true statement about the value of the expression $(52)(-103)(-45)(-8)(3)$?

A. The result is a fraction.
B. The result is greater than 1.
C. The result is a negative number.
D. The result is a positive number.

STUDY ADVICE

Approximately 25% of questions on the Mathematics Test will target algebra skills. Therefore, even though this chapter is long, working your way through it will really pay off on Test Day. Concepts covered in the chapter will increase in difficulty as you go, so be sure to review previous lessons anytime you need to.

Lesion 4: Practice 4 (all questions)

PRACTICE 4

Example 3: Evaluate the expression $\frac{15+25}{2(5)}+6$.

1. Perform the operations above and below the fraction bar. $\frac{15+25}{2(5)}+6$

2. Divide, then add. $\frac{40}{10}+6$

$4+6=10$

A. Solve. You MAY NOT use a calculator.

1. $4(3)-2+(6+4\cdot 2)=14$
2. $16\div(10-6)^2=1$
3. $5^2-(5-7)(2)=29$
4. $3(-3)+(7+4)=2$
5. $\frac{3^3}{5-2}-\frac{(4-2)^2}{2}=1$
6. $\frac{25}{(4+1)}\cdot 3+(6-1)=20$
7. $2^3+(8-5)^2-3=14$
8. $(4-12)(-6)+(10-3)=55$
9. $30\div 3(5-4)=10$
10. $15+(4)(3)-2^2=23$
11. $(4+2)^2+(7-2)^3=161$
12. $7^2\div(11-4)+(9+14)=30$
13. $2\left[(17-11)^2\cdot\frac{(15-5)}{2}\right]=360$
14. $(5^2+6-3)\div(16-3^2)=4$
15. $150-4\left[\frac{3+9}{4-1}\cdot(14-11)^2\right]=6$

B. Choose the one best answer to each question.

Question 16 refers to the following information.

Susan is in charge of planning Midvale Hospital's parent education classes. The table below shows the cost of each class to the hospital.

Type of Workshop	Cost
Childbirth Classes	$35 per couple
Infant Care	$30 per person
Teaching Your Child to Read	$60 per person

16. A local foundation has offered to pay 75% of the cost of infant care classes. The hospital will cover any remaining costs. There are 28 parents enrolled in the upcoming infant care class. Which of the following expressions could be used to find the amount the hospital will pay?

A. (75)(28)(30)
B. (28)(30) – (0.75)(30)
C. (1 – 0.75)(28)(30)
D. (1 – 0.75)(30) + 28

17. In the expression $5+2\left[7\left(\frac{10^2}{10}\right)+(6-2)(3)\right]$, what is the last operation you should perform to find the value of the expression?

A. Subtract 2 from 6.
B. Add 5.
C. Multiply by 2.
D. Find the square of 10.

18. Find the value of the expression $22+6[(14-5)\div 3(17-14)]$.

A. 2.73
B. 28
C. 76
D. 97

STUDY ADVICE

An easy way to remember the order of operations is to memorize the phrase *"Please excuse my dear Aunt Sally. Love, Ron."* The first letters of that phrase correspond to the order of operations: Parentheses, Exponents, Multiply, Divide, Add, Subtract, and work Left to Right.

Lesion 5: Practice 5, Section A: q1-6, section B: q13-20 section C: all 4-word problems

PRACTICE 5

A. Find the absolute values.

1. $|18| = 18$
2. $|-107| = 107$
3. $|423| = 423$
4. $|95| = 95$
5. $|-7026| = 7026$
6. $|-18| = 18$
7. $|-5,708,432|$
8. $|-85.6|$
9. $|42|$
10. $|10.5|$
11. $|-163.24|$
12. $|-3.14|$

B. Use absolute value to find the solutions.

13. $5+|-6| = 11$
14. $-3|52| = -156$
15. $3|-52| = 156$
16. $12 \div |-4| = 3$
17. $-|110-201| = -91$
18. $-14+|-28 \div 2| = 0$
19. $706.2-|-86.4+0.2| = 619.6$
20. $49 \div (-|-7|) = -7$
21. $-5|-4| =$
22. $|-6|-|-7|$
23. $|17| \div |-8|$
24. $|-5.5| \times (-2)$

C. Choose the one best answer to each question.

25. The temperature in Northville at 9:00 p.m. was –5°F. By 5:00 a.m. the following morning, the temperature was –15°F. By how many degrees did the temperature change?
    A. –15 degrees
    B. –5 degrees
    C. 5 degrees
    D. 10 degrees

26. Bob has errands to run. He walks 5 blocks east from his apartment to the barber shop, then walks 6 blocks west to the grocery store, then walks another 2 blocks west to the post office, and finally walks back home. Assuming that Bob's apartment, the barber shop, the grocery store, and the post office are all located on the same street, how many blocks did Bob walk in completing his errands?
    A. 6
    B. 11
    C. 13
    D. 16

27. Milania has a score of –65 points, and Chris has a score of 55 points. By how many points is Milania losing to Chris?
    A. 55
    B. 65
    C. 120
    D. 150

28. Absolute error is the absolute value of the difference between an actual value and its measurement. A deli scale gives a measurement of 25 ounces for a cut of meat that actually weighs only 23.5 ounces. What is the absolute error, in ounces, of the deli scale in this instance?
    A. 1.5
    B. 23.5
    C. 25
    D. 48.5

Lesion 7: Practice 7 (all questions)

PRACTICE 7

The symbol for square root is $\sqrt{\ }$. To find a square root, think, "What number multiplied by itself is equal to the number beneath the square root symbol?"

Example 4: Find the value of $\sqrt{144}$.

You know that $12 \times 12 = 144$, so the square root of 144 is **12**. Although $(-12) \times (-12)$ also equals 144, you will only be expected to find positive roots on the TASC Mathematics Test.

You may have to approximate the value of a square root.

Example 5: The square root of 90 falls between which two whole numbers?

You know that $9 \times 9 = 81$ and $10 \times 10 = 100$. Therefore, the square root of 90 is **between 9 and 10.**

You can also use your calculator to find a square root. On the TI-30SX MultiView™, you must first press the 2nd key to access the square root function. The $\sqrt{\ }$ function is directly above the x^2 key. (Other calculators may not require the use of the 2nd key.)

Example 6: Use your calculator to find $\sqrt{90}$ to the nearest tenth.

On the TI-30SX MultiView™, press 2nd x^2 90 enter. The right side of the display reads $3\sqrt{10}$.

Press the toggle key, ◀▶, to change the format of the answer into a decimal. The right side of the display now reads 9.486832981. Rounding to the tenths place, $\sqrt{90} \approx$ **9.5**.

A. Solve each expression. You MAY NOT use a calculator.

1. $3^2 = 9$
2. $4^1 = 4$
3. $\sqrt{9} = 3$
4. $25^0 = 1$
5. $(-3)^2 = 9$
6. $\sqrt{49} = 7$
7. $5^3 = 125$
8. $4^{-2} = \frac{1}{16} = 0.063$

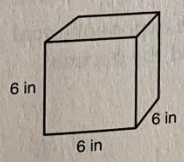
B. Solve each expression below. You MAY use your calculator. Round your answer to the nearest tenth.

9. $3^8 = 6561$
10. $(-6)^4 = 1296$
11. $\sqrt{150} = 5\sqrt{6} = 12.25$
12. $20^3 = 8000$
13. $1^{15} = 15$
14. $(-4)^{-2} = \frac{1}{16} \approx 0.06$
15. $\sqrt{242} = 15.56$
16. $(3.3)^2 = 10.89$
17. $\sqrt{57} = 7.55$
18. $\sqrt{536} = 23.15$
19. $112^0 = 1$
20. $(-2)^8 = 256$

C. Choose the one best answer to each question.

21. The cube shown below measures 6 inches on each side. You can find the volume of the cube by multiplying length × width × height. Which of the following expressions represents the volume of the cube?

A. 6^1
B. 6^2
C. 6^3
D. 6^6



22. Which of the following expressions has the least value?

A. $3^{-3} = \frac{1}{27} = 0.037$
B. $4^0 = 1$
C. $4^1 = 4$
D. $2^{-4} = \frac{1}{16} = 0.063$

Lesion 8: Practice 8 (all questions)

PRACTICE 8

You may be asked to compare numbers in scientific notation.

Example 5: Which is greater: 4.5×10^3 or 9.8×10^4?

You don't need to change the numbers to standard notation. Simply consider the powers of ten. Multiplying by 10^4, or 10,000, must have a greater result than multiplying by 10^3, which equals 1,000. In scientific notation, the number with the greater power of 10 has the greater value. Therefore, **9.8×10^4 is greater than 4.5×10^3.**

A. Write each number in scientific notation.

1. 2300 = 2.3×10^3
2. 0.00042 = 4.2×10^{-4}
3. 12,400,000 = 1.2×10^7
4. 14,320,000,000 = 1.4×10^{10}
5. 36,000,000 = 3.6×10^7
6. 0.0095 = 9.5×10^{-3}
7. 0.00000058 = 5.8×10^{-7}
8. 150,000,000,000 = 1.5×10^{11}
9. 0.000000009 = 9.0×10^{-9}

B. Convert from scientific notation to standard notation.

10. 5.173×10^{-4} = .0005173
11. 3.7×10^6 = 3700000
12. 4.8×10^8 = 480000000
13. 1.7×10^{-5} = .00017
14. 7.2×10^{-3} = .0072
15. 9.16×10^5 = 916000
16. 8.591×10^7 = 85910000
17. 9.56×10^{-6} = .00000956

C. Answer the following questions.

18. Many domestic satellites maintain an orbit approximately 23,500 miles above Earth. What is that distance in miles in scientific notation? 2.35×10^4
19. Modern technology measures very fast transactions in nanoseconds. One nanosecond equals 1.0×10^{-9} of a second. How many seconds is a nanosecond, in standard notation? .000000001
20. The average distance of Neptune from Earth is 2.67×10^9 miles. Write the distance, in miles, in standard notation.
    ⇒ 2670000000
21. Light in the vacuum of space travels at a speed of nearly 300 million meters per second. Write the speed, in meters per second, in scientific notation.
    ⇒ 3×10^8

D. Choose the one best answer to each question.

Questions 22 and 23 refer to the following table.

Unit	U.S. Equivalent	Metric Equivalent
1 ton	2,000 lb	0.907 metric ton
1 acre	43,560 sq ft	4,047 square m

22. What is the number of square feet in an acre, written in scientific notation?
    A. 0.4356×10^6
    B. 4.356×10^4
    C. 4.356×10^3
    D. 43.56×10^3
23. A shipment of goods weighs 5 tons. Which of the following expressions could be used to express the weight in metric tons?
    A. $5 \times 0.907 \times 10^{-1}$
    B. $5 \times 9.07 \times 10^1$
    C. $5 \times 9.07 \times 10^{-2}$
    D. $5 \times 9.07 \times 10^{-1}$

Lesion 9: Practice 9.1: q4-7, Practice 9.2.q1-4

PRACTICE 9.1

1. Peter wants to repaint his 700-square-foot apartment. He calculates that he has 3500 square feet of wall space to paint. (He will not paint the floor or the ceiling.) If each gallon of paint will cover 350 square feet of wall space, how many gallons will Peter need?

   A. 2
   B. 5
   C. 10
   D. 15

2. For a family get-together, Darryl wants to be sure that each child gets 2 party favors. The party favors cost $3 each, and there are 11 children coming. How many party favors will Darryl need?

   A. 9
   B. 11
   C. 18
   D. 22

3. Sarah and Kate live 18 miles apart, and they both work at the same office. If Sarah lives 25 miles from the office and Kate lives 30 miles from the office, how many miles farther from the office does Kate live than Sarah?

   A. 5
   B. 7
   C. 12
   D. 15

4. The Navarro family uses an average of 225 gallons of water per day, 5 gallons of which goes through the family's water filter. The Navarros' water filter can process 450 gallons before it needs to be replaced. After how many days of average water use will the family need to replace their filter?

   A. 9
   B. 45
   C. 90
   D. 225

Questions 5 and 6 are based on the following information.

Joyce owns a beauty salon, and she has posted the following information in her salon.

Service	Minutes to Complete	Price
Manicure	30	$15
Pedicure	30	$25
Manicure & Pedicure	45	$35
Facial	45	$45
Makeover	60	$60

5. How many minutes will it take Joyce to give 3 pedicures?

   A. 30
   B. 55
   C. 75
   D. 90

6. How much more does a customer pay for the makeover than for the manicure & pedicure combination?

   A. $15
   B. $20
   C. $25
   D. $35

7. Brandon is planning his part of the local community garden. He has calculated that he can plant 6 seedlings per row, and the garden allots 7 rows to each gardener. What is the maximum number of seedlings Brandon could plant?

   A. 7
   B. 13
   C. 24
   D. 42

PRACTICE 9.2

Questions 1–3 are based on the information below.

Farhana's produce company distributes to several restaurants. The table below shows how many cases of different produce each restaurant ordered from Farhana's company in July.

Produce Orders in July

	Asparagus	Boston Lettuce	Carrots	Romaine Lettuce	Tomatoes
Restaurant A	2	3	1	4	3
Restaurant B	4	4	2	2	1
Restaurant C	0	0	3	4	3
Restaurant D	1	2	2	3	4
Restaurant E	3	0	3	2	1

1. If Boston lettuce costs $17 per case and romaine lettuce costs $23 per case, how much did Restaurant D spend on lettuce ordered from Farhana in July?
   A. $85
   B. $93
   C. $103
   D. $143

2. Delivery costs $2 per case for the first 5 cases and $1 per case for each additional case of produce. What was Restaurant B's delivery charge in July?
   A. $13
   B. $18
   C. $20
   D. $26

3. If asparagus costs $22 per case and tomatoes cost $15 per case, which of the following restaurants spent the most on asparagus and tomatoes combined?
   A. Restaurant A
   B. Restaurant B
   C. Restaurant C
   D. Restaurant D

STUDY ADVICE

Word problems frequently involve rates, which you will read about next. Just remember: You frequently deal with rates in real life, e.g., miles per hour, miles per gallon. Your doctor may measure your heart rate in beats per minute. At your job, you may be paid in dollars per hour. TASC problems simply ask you to apply these real-life concepts, so don't let them throw you off.

4. At a certain store, loose-leaf paper comes only in packages of 400 sheets. If a student buys enough paper at this store to fill 3 binders with 150 sheets of paper each, how many sheets will be left over?
   A. 17
   B. 50
   C. 350
   D. 450

5. Three friends are baking cupcakes for a bake sale. Each batch of 24 cupcakes requires 2 cups of flour. The friends have a single 5-pound bag of flour that contains 19 cups of flour. How many whole batches of cupcakes can they bake?
   A. 9
   B. 38
   C. 216
   D. 228

6. A certain health insurance plan costs $3000 per year for a family of six. If each member of the family has $750 in medical expenses in a year, and the plan pays 100% of those expenses, how much will the family save by purchasing the plan?
   A. $1500
   B. $2000
   C. $2500
   D. $3000

Lesion 10: Practice 10, Section A: all questions, Section B: all questions

PRACTICE 10

A. Each problem below includes two of the three variables from either the distance formula or the cost formula. Write the missing variable you need to solve for. Then decide which of the following formula variations you would use in each situation. The first one is done for you.

$d = rt$ $\quad \frac{d}{r} = t$ $\quad \frac{d}{t} = r$ $\quad c = nr$ $\quad \frac{c}{n} = r$ $\quad \frac{c}{r} = n$

1. Given: distance and time
   Solve for: rate
   Formula: $\frac{d}{t} = r$
2. Given: rate and time
   Solve for: distance
   Formula: $d = rt$
3. Given: distance and rate
   Solve for: time
   Formula: $t = \frac{d}{r}$
4. Given: cost and number of units
   Solve for: Price per unit
   Formula: $r = c/n$
5. Given: number of units and price per unit
   Solve for: cost
   Formula: $c = nr$
6. Given: cost and price per unit
   Solve for: # of unit
   Formula: $n = c/r$

B. Use the formulas provided in part A above to help you set up the problems. Solve for the unknown variable.

7. Find the total cost of 4 flats of plants at $12 per flat. ⇒ $48
8. Find the total cost of 12 boxes of cookies if each box costs $3. ⇒ $36
9. If 4 tires cost $320, how much does a single tire cost? ⇒ $80
10. How many tickets would you get for $25 if raffle tickets cost $5 apiece? ⇒ 5
11. If you paid $20 for 10 bus transfer tickets, how much did you pay per ticket? ⇒ $2
12. Find the distance traveled by a car averaging 60 miles per hour for 3 hours. ⇒ 60 miles
13. Find the distance traveled by a train averaging 50 miles per hour for 4 hours. ⇒ 200 miles
14. How long does it take for a bus to travel 25 miles at an average rate of 25 miles per hour? ⇒ 1 hour
15. If a train travels 270 miles in 3 hours, what is the train's average speed? ⇒ 90 miles
16. How long does it take to complete a delivery route of 75 miles at a rate of 25 miles per hour? ⇒ 3 hours

C. Choose the one best answer to each question.

17. A company sold a total of $640 in gift boxes. If the gift boxes cost $20 apiece, how many gift boxes did the company sell?
    A. 32
    B. 320
    C. 660
    D. 1280
18. A truck driver traveled 275 miles in 5 hours. What was his average speed in miles per hour?
    A. 1375
    B. 280
    C. 270
    D. 55

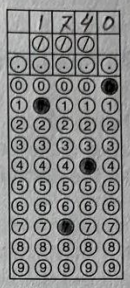
Extra Practice
Lesion 12: Practice 12

PRACTICE 12

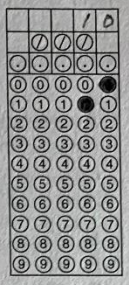
Directions: For each question, mark your answer in the circles in the appropriate grid.

1. A veterinary clinic treated 435 cats over a 3-month period. At this rate, how many cats will the clinic treat in a 12-month period?
2. A quick oil change shop recommends changing a car's oil and filter every 3,500 miles. If a car is driven 35,000 miles, how many times should the oil and filter have been changed?
3. Attendance at a local play was 348 Friday night, 366 Saturday night, and 280 Sunday afternoon. What was the total attendance for the 3 days?
4. A restaurant sells cookies at the price of 3 for $1. How many cookies could you buy for $5?
5. How many sheets of paper would 4 copies of a 617-page document use, if the document is printed so that only one side of each sheet of paper is used?
6. How many months would it take to pay back $1,050 at $50 per month?

1.



2.



3.

4.

5.

6.

Section 2: Decimal Basics

Lesson 1: All Practice 1, (all questions)

PRACTICE 1

When you compare more than two numbers, it is helpful to compare one place-value column at a time, working from left to right.

Example 3: Arrange the numbers 0.85, 1.8, 0.8, and 0.819 in order from greatest to least.

1. Write the numbers in a column, lining up the decimal points. Add zeros so that the numbers have the same number of decimal places.

0.850
1.800
0.800
0.819

2. Compare the digits, working from left to right. Only 1.8 has a whole number part, so it is greatest. The remaining numbers each have 8 in the tenths column. Looking at the hundredths column, 0.85 is next, followed by 0.819. The least number is 0.8.

In order: **1.8**
0.85
0.819
0.8

A. Round these numbers as directed.

1. Round 3.75 to the tenths place. → 3.80
2. Round 5.908 to the ones place. → 5.9
3. A calculator display reads 0.4285714. Round to the nearest hundredth. → 0.429
4. Round 0.66667 to the nearest thousandth. → 0.6667
5. Round 8.125 to the nearest tenth. → 8.13
6. A calculator display reads 2.7142857. Round to the nearest thousandth. → 2.7143

B. In each of the following pairs, which number is greater?

7. 0.45 or 0.449
8. 0.008 or 0.08
9. 4.68 or 4.086
10. 0.75 or 1.85
11. 1.0275 or 1.029
12. 0.14 or 0.104

C. Write these numbers in order from least to greatest.

13. 5.6 5.08 5.8 5.802 = 5.08, 5.6, 5.8, 5.802
14. 0.1136 0.12 0.2 0.115 = 0.1136, 0.115, 0.12, 0.2
15. 14.005 4.52 4.8 4.667 = 4.52 → 4.667 → 4.8 → 14.005
16. 0.8023 0.8 0.803 0.823 = 0.8 → 0.8023 → 0.803 → 0.823

D. Choose the one best answer to each question.

17. In a circuit board assembly, the weights of three parts are 0.572 grams, 0.0785 grams, and 0.6 grams. Which of the following lists the weights in order from greatest to least?

A. 0.0785 g, 0.572 g, 0.6 g
B. 0.6 g, 0.0785 g, 0.572 g
C. 0.6 g, 0.572 g, 0.0785 g
D. 0.572 g, 0.6 g, 0.0785 g

18. Which of the following correctly shows 1.3815 rounded to the nearest hundredth?

A. 1.4
B. 1.382
C. 1.381
D. 1.38

Lesson 2: Practice 2.1, section A: q1-12, q25 & q27, Practice 2.2: q1-12, q25, q26

PRACTICE 2.1

A. Solve. You MAY NOT use a calculator.

1. 4.025 + 3.971 = 7.996
2. 6.500 + 4.008 = 10.508
3. 2.80 + 9.46 = 12.26
4. 8.04 − 2.19 = 5.85
5. 8.500 − 1.074 = 7.426
6. 10.00 − 7.89 = 12.11
7. 17.294 + 0.800 = 18.094
8. 4.070 + 1.047 = 5.117
9. 17.52 + 3.80 = 21.32
10. 3.800 − 2.905 = .895
11. 14.64 − 10.80 = 3.84
12. 100.50 − 98.15 = 2.35

13. 0.236 + 2.4 + 2.87 = 5.506
14. 38.06 − 16.9 = 21.16
15. 0.006 + 0.09 + 0.549 = 0.645
16. 8.5 − 6.074 = 2.426
17. 1.02 − 0.87 = 0.15
18. 0.45 + 1.8 + 0.07 + 2.56 = 4.88
19. 12.5 − 0.7 = 11.8
20. 25 − 10.984 = 14.016
21. 0.01 + 2.052 + 0.96 + 1.5 = 4.522
22. 12.9 − 10.54 = 2.36
23. 0.68 + 12.3 + 4.9 = 17.88
24. 32.9 − 15.675 = 17.225

B. Choose the one best answer to each question.

25. James ran 3 miles. His times for the individual miles were 7.2 minutes, 6.8 minutes, and 8.25 minutes. How long did it take him, in minutes, to run the 3-mile distance?

A. 22.25
B. 22.7
C. 23.35
D. 96.5

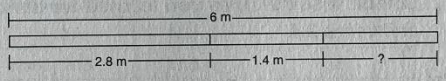
26. Claudia earns overtime pay when she works more than 40 hours in one week. How many hours of overtime pay did she work for the week of March 4?

Work Record for March 4–10

March 4	8.5
March 5	Off
March 6	9.25
March 7	8.75
March 8	10
March 9	Off
March 10	7.75

A. 44.25
B. 40.0
C. 4.25
D. 2.25

27. A plumber cut two lengths of pipe measuring 2.8 and 1.4 meters from a 6-meter length.



Assuming there was no waste when the cuts were made, what is the length in meters of the remaining piece?

A. 1.8
B. 3.2
C. 4.2
D. 7.4

28. Mona purchased the following art supplies: a storage box for $16.98, a set of art markers for $31.78, and a pad of paper for $6.50. What was the cost of the three items?

A. $48.76
B. $53.26
C. $55.26
D. $61.76

PRACTICE 2.2

A. Solve. You MAY NOT use a calculator.

1. 5.3×0.5
2. 64×0.2
3. 12.4×0.04
4. $6\overline{)3.12}$
5. $8\overline{)28.8}$
6. $5\overline{)20.45}$
7. 6.25×1.4
8. 13.5×0.25
9. 9.62×1.005
10. $1.25\overline{)30}$
11. $2.8\overline{)39.76}$
12. $0.003\overline{)47.4}$
13. $15.5 \times 2.2 =$
14. $0.944 \div 0.4 =$
15. $2.05 \times 0.32 =$
16. $1.32 \div 0.5 =$
17. $2.75 \times 0.6 =$
18. $12.825 \div 3 =$
19. $3.36 \times 1.1 =$
20. $15.03 \div 15 =$
21. $0.12 \times 0.06 =$

B. Choose the one best answer to each question.

22. One container of floor cleaner holds 3.79 liters. If Zachary bought 4 containers, how many liters of cleaner did he buy?
    A. 0.9475
    B. 7.79
    C. 12.83
    D. 15.16

23. Ribbon costs $0.45 per foot. A sewing project calls for 20.5 feet of ribbon. To the nearest cent, what will be the cost of the ribbon for the project?
    A. $0.92
    B. $9.23
    C. $9.90
    D. $45.56

24. Armando drove 278.7 miles over a 3-day period. On average, how many miles did he drive each day?
    A. 9.3
    B. 90.3
    C. 92.9
    D. 836.1

Questions 25 and 26 are based on the following information.

Cereal	Net Weight	Servings per Box
Toasted Oats	22.8 oz	19
Crisp Rice	16.9 oz	13
Honey Mix	12.5 oz	10

25. A box of Toasted Oats cereal is priced at $4.94. What is the cost per serving? (*Hint:* Divide the price by the number of servings.)
    A. $0.49
    B. $0.29
    C. $0.26
    D. $0.22

26. Lee bought 4 boxes of Honey Mix cereal. How many ounces of cereal did she buy?
    A. 31.25
    B. 50.0
    C. 67.6
    D. 91.2

STUDY ADVICE

You work with decimals in real life almost every day, because amounts of money are usually expressed in decimal form. *So don't be intimidated* by decimal problems: If you can understand prices, you can work with decimals!

Lesson 3: Practice 3: Section A, B, C (q7-q10), Section D 9q19-q21), Section E q25-q26, Section F: q 27-q28

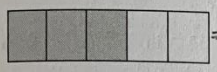
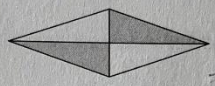
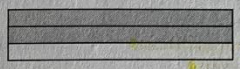
PRACTICE 3

To perform operations with fractions, you need to be able to write equal fractions in higher or lower terms. The **terms** are the numerator and the denominator. A fraction is **reduced to lowest terms** when the two terms do not have any common factor except 1.

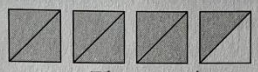
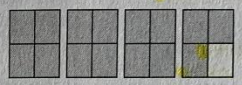
To **raise** a fraction, multiply both terms by the same number: $\frac{3}{4} = \frac{3\times3}{4\times3} = \frac{9}{12}$.

To **reduce** a fraction, divide both terms by the same number: $\frac{10}{15} = \frac{10\div5}{15\div5} = \frac{2}{3}$.

A. Write a proper fraction for the shaded portion of each figure.

1.  $= \frac{3}{5}$ 2.  $= \frac{2}{4}$ 3.  $= \frac{2}{3}$

B. Write an improper fraction and a mixed number for the shaded portion of each figure.

4.  $= \frac{7}{3} = 2\frac{1}{3}$ 5.  $= \frac{7}{2} = 3\frac{1}{2}$ 6.  $= \frac{15}{4} = 3\frac{3}{4}$

C. Write improper fractions as mixed numbers and mixed numbers as improper fractions.

7. $\frac{17}{3} = 5\frac{2}{3}$
8. $3\frac{3}{5} = \frac{18}{5}$
9. $\frac{24}{6} = \frac{4}{1}$
10. $5\frac{2}{9} = \frac{47}{9}$
11. $\frac{19}{4} =$
12. $2\frac{5}{12} =$
13. $\frac{43}{9} =$
14. $1\frac{3}{4} =$
15. $\frac{33}{4} =$
16. $5\frac{7}{10} =$

D. Write an equal fraction with the given denominator.

17. $\frac{3}{4} = \frac{}{16}$
18. $\frac{1}{3} = \frac{}{21}$
19. $\frac{4}{5} = \frac{48}{60}$
20. $\frac{3}{8} = \frac{15}{40}$
21. $\frac{6}{25} = \frac{24}{100}$

(*Hint for question 17:* $4 \times ? = 16$)

E. Reduce each fraction to lowest terms.

22. $\frac{21}{28} =$
23. $\frac{4}{24} =$
24. $\frac{12}{20} =$
25. $\frac{26}{30} = \frac{13}{15}$
26. $\frac{60}{90} = \frac{2}{3}$

F. Choose the one best answer to each question.

27. Eighteen out of every 24 people surveyed say they went to at least one movie in December. What fraction of the people surveyed went to at least one movie in December?
   - A. $\frac{3}{4}$
   - B. $\frac{2}{3}$
   - C. $\frac{1}{3}$
   - D. $\frac{1}{4}$

28. Which of the following fractions equals $\frac{2}{5}$?
   - A. $\frac{15}{100}$
   - B. $\frac{30}{100}$
   - C. $\frac{40}{100}$
   - D. $\frac{80}{100}$

Lesson 4: Practice 4.1 Section B, q 26-q29, Practice 4.2, Section B, q19-q22

PRACTICE 4.1

A. Solve. Reduce answers to lowest terms. Simplify improper fractions as mixed numbers.

1. $\frac{3}{8} + \frac{1}{8}$
2. $\frac{1}{6} + \frac{5}{6}$
3. $\frac{8}{9} - \frac{5}{9}$
4. $\frac{7}{12} - \frac{5}{12}$
5. $\frac{1}{4} + \frac{2}{3}$
6. $\frac{1}{2} + \frac{5}{8}$
7. $\frac{9}{10} - \frac{3}{5}$
8. $\frac{7}{9} - \frac{1}{2}$
9. $2\frac{1}{5} + 1\frac{2}{3}$
10. $4\frac{1}{2} - 2\frac{3}{4}$

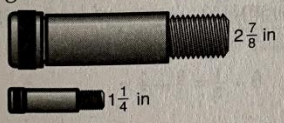
11. $5\frac{5}{6} + 2\frac{2}{3} =$
12. $6\frac{7}{8} + 4\frac{3}{4} =$
13. $12\frac{1}{10} + 9\frac{3}{5} =$
14. $2\frac{2}{9} + \frac{2}{3} + 4\frac{5}{6} =$
15. $3\frac{1}{3} + 5\frac{2}{3} + 3\frac{5}{6} =$
16. $\frac{3}{8} + \frac{7}{12} + 1\frac{2}{3} =$
17. $16\frac{2}{3} + 25\frac{3}{4} =$
18. $10\frac{1}{2} + 8\frac{4}{5} + 3\frac{1}{4} =$
19. $8\frac{1}{2} - 3\frac{4}{9} =$
20. $15 - 3\frac{7}{8} =$
21. $14\frac{1}{4} - 10\frac{3}{7} =$
22. $9\frac{11}{12} - 8\frac{5}{8} =$
23. $6 - 3\frac{4}{7} =$
24. $13\frac{1}{3} - 4\frac{4}{9} =$
25. $5\frac{5}{7} - 4\frac{4}{5} =$

B. Choose the one best answer to each question.

26. To make the top of a dining room table, Craig glues a piece of oak that is $\frac{5}{16}$ inch thick to a piece of pine that is $\frac{7}{8}$ inch thick. What is the total thickness, in inches, of the tabletop?

A. $\frac{9}{16}$
B. $1\frac{3}{16}$
C. $1\frac{1}{4}$
D. $1\frac{9}{16}$

27. Carol will use the two bolts shown below to assemble a book cart. How much longer, in inches, is bolt A than bolt B?



A. $\frac{5}{8}$
B. $1\frac{3}{8}$
C. $1\frac{5}{8}$
D. $1\frac{3}{4}$

28. At a fabric store, Melissa sold $8\frac{7}{8}$ yards of cloth to a customer. If the material was cut from a bolt of fabric containing $23\frac{1}{4}$ yards, how many yards are left on the bolt?

A. $14\frac{3}{8}$
B. $15\frac{3}{8}$
C. $15\frac{3}{4}$
D. $31\frac{7}{8}$

29. A batch of salad dressing requires $1\frac{2}{3}$ cups of olive oil, $\frac{1}{2}$ cup of vinegar, and $\frac{3}{4}$ cup of water. How many cups of salad dressing will this recipe produce?

A. $1\frac{2}{3}$
B. $2\frac{5}{6}$
C. $2\frac{11}{12}$
D. $3\frac{7}{12}$

STUDY ADVICE

Remember that practice has three levels: Learn and Review, Practice and Review, Assess and Review. For each lesson, absorb the concepts on the left page. Then practice using the page on the right, and carefully review the explanations in the back of the book. Finally, use the question sets at the end of each chapter to assess your progress. Don't forget to review the explanations for those question sets, too.

PRACTICE 4.2

A. Solve. Reduce answers to lowest terms. Simplify improper fractions as mixed numbers.

1. $\frac{2}{3} \times \frac{1}{4} =$
2. $1\frac{5}{6} \times \frac{1}{2} =$
3. $\frac{2}{3} \times 21 =$
4. $50 \times \frac{3}{8} =$
5. $3\frac{1}{2} \times \frac{1}{4} =$
6. $\frac{3}{4} \times \frac{7}{8} =$
7. $2\frac{1}{3} \times 3\frac{2}{5} =$
8. $15 \times 2\frac{3}{4} =$
9. $\frac{5}{8} \times 3\frac{1}{4} =$
10. $\frac{7}{8} \div \frac{1}{16} =$
11. $\frac{4}{5} \div \frac{4}{9} =$
12. $12 \div \frac{1}{4} =$
13. $6 \div 2\frac{1}{2} =$
14. $3\frac{3}{4} \div 1\frac{2}{3} =$
15. $9 \div \frac{1}{3} =$
16. $26\frac{2}{3} \div 3\frac{1}{3} =$
17. $40\frac{3}{8} \div 4\frac{1}{4} =$
18. $3\frac{7}{8} \div 5\frac{1}{6} =$

B. Choose the one best answer to each question.

19. A city is considering raising taxes to build a football stadium. A survey of registered voters yielded the following results:

Position	Fraction of Those Surveyed
Against Tax Hike	$\frac{7}{16}$
For Tax Hike	$\frac{3}{16}$
Undecided	$\frac{3}{8}$

If 400 people were surveyed, how many support the tax hike?

A. 48
~~B.~~ 75
C. 150
D. 175

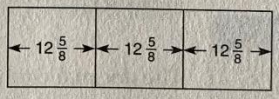
20. A tailor has 20 yards of shirt fabric. How many shirts can she complete if each shirt requires $2\frac{3}{4}$ yards of fabric?

A. 6
~~B.~~ 7
C. 8
D. 10

21. An insurance agent estimates that it takes $\frac{2}{3}$ hour to process a customer's claim. If the agent spends 22 hours per week processing claims, about how many claims does he process in a week?

~~A.~~ $14\frac{2}{3}$
B. 33
C. 44
D. 66

22. A fluorescent lighting panel is $12\frac{5}{8}$ inches wide. If three of the panels are installed as shown below, what will be the width in inches of the combined panels?



A. $13\frac{7}{8}$
B. $36\frac{5}{8}$
~~C.~~ $37\frac{7}{8}$
D. $42\frac{7}{8}$

Lesson 5: Practice 5, q1-5

PRACTICE 5

Knowing fraction-decimal equivalents can also help you interpret remainders when using a calculator.

Example 4: Ray inspects machine assemblies. He must inspect 12 assemblies during his 40-hour workweek. On average, how many hours can he spend on each inspection?

Using a calculator, divide 40 by 12: 40 ÷ 12 enter. The right side of the display reads 3.333333333.

Since you know that $0.33\overline{3} = \frac{1}{3}$, the answer is $3\frac{1}{3}$ **hours.** Remember, $\bar{x} = 9$, $\bar{x}\bar{x} = 99$. Example, $.6 = \frac{6}{9} = \frac{2}{3}$

Solve. When possible, use fraction and decimal equivalents to make the work easier. You MAY use a calculator on questions 5 and 6.

1. During a 25%-off sale, store clerks find the amount of the discounts by multiplying the regular price by 0.25. What is the discount on an item with a regular price of $80?

   A. $32.00
   B. $20.00
   C. $16.40
   D. $2.00

2. At Linton Products, $\frac{3}{10}$ of the workers are in the company's ride-share program. If there are 480 workers, which of the following expressions could be used to find the number in the ride-share program?

   A. 480×0.7
   B. $480 \div 0.7$
   C. 480×0.3
   D. $480 \div 0.3$

3. Sharon is using a calculator to find out how many hours she has spent on a certain job. She divides, and her display reads:

   4.666666666

   Assuming her calculations are correct, how many hours did she spend on the job?

   A. $4\frac{1}{6}$
   B. $4\frac{2}{3}$
   C. $4\frac{6}{7}$
   D. 46

4. A gourmet candy company charges the following prices per pound.

Jelly Beans	$9.60
Peanut Brittle	$12.00
Almond Toffee	$28.50

   How much would a customer pay for 1.5 pounds of peanut brittle?

   A. $6.00
   B. $14.40
   C. $18.00
   D. $42.75

5. At 1 p.m., the amount of rain in a rain gauge is 1.125 inches. At 3 p.m., the gauge holds 1.875 inches. What fraction of an inch of rain fell between 1 p.m. and 3 p.m.?

   A. $\frac{7}{8}$
   B. $\frac{3}{4}$
   C. $\frac{7}{10}$
   D. $\frac{1}{8}$

6. A steel rod, 3 meters in length, is cut into 8 equal pieces. What is the length in meters of each piece?

   A. 0.125
   B. 0.333
   C. 0.375
   D. 2.333

STUDY ADVICE

Memorizing some basic fraction-decimal equivalencies can save you time on the TASC Mathematics Test. Consider making flash cards to help you memorize them.

Lesson 6: Practice 6, q 1-8

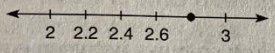
PRACTICE 6

A. Choose the one best answer to each question.

1. What is the value of the point on the number line below?

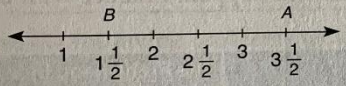
A. 0
B. $\frac{1}{2}$
C. $\frac{2}{3}$
D. $1\frac{1}{3}$

2. What is the value of the point on the number line below?



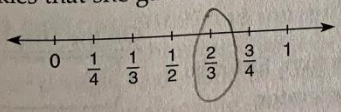
A. 2
B. 2.5
C. 2.7
D. 2.8

3. In the number line below, what is the value of A minus B?



A. 1
B. $1\frac{1}{2}$
C. 2
D. $3\frac{1}{2}$

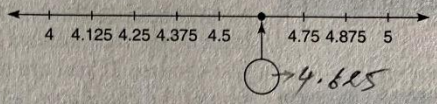
4. Angela baked 24 cookies and gave 16 of them to her neighbor. On the number line below, circle the fraction of Angela's cookies that she gave to her neighbor.



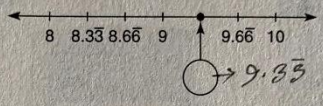
B. Write the decimal values of the points on the number lines.

For each of the number lines below, fill in the value of the point using decimals.

5.



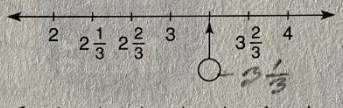
6.



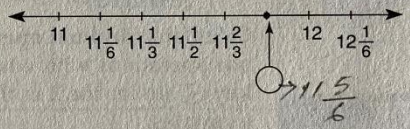
C. Write the fraction values of the points on the number lines.

For each of the number lines below, fill in the value of the point using mixed fractions.

7.



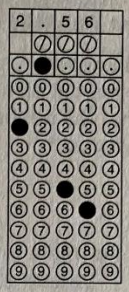
8.



Extra Practice
Lesson 8: Practice 8

PRACTICE 8

Example 3: A chemical compound weighs 12.8 kilograms. If the compound is divided equally into five portions, how many kilograms will each weigh?



1. Divide. 12.8 ÷ 5 = **2.56**

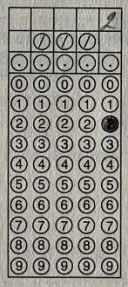
2. Write the answer in the blank boxes. Then fill in the appropriate circles in the grid.

Solve. Mark your answers in the grids on the right side of the page. You MAY use your calculator.

1. On a business trip, Alex had to buy gasoline three times. He bought 12.6, 9.8, and 13.2 gallons of gasoline. How many gallons did he buy in all?
2. Aubrey withdraws $150 from her bank account and pays $100 to her day-care provider. What fraction of the withdrawal did she spend on day-care?
3. Colleen worked $9\frac{1}{2}$ hours on Monday and $7\frac{1}{2}$ hours on Tuesday. How many hours more did she work on Monday than on Tuesday?
4. A bottle holds 2.6 ounces of food coloring. How many bottles can be completely filled from 100 ounces of food coloring?
5. For a youth picnic, Leah bought 18 cases of soft drinks: 9 were root beer, 6 were lemon-lime, and 3 were cherry cola. Reduced to lowest terms, what fraction of the cases were cherry cola?
6. A sheet of foam board is 0.5 centimeter thick. How many sheets of the board can be stacked in a space that is 12.5 centimeters high?

1. 

2. 

3. 

4. 

5. 

6. 

STUDY ADVICE

Are you sticking to your study schedule? If not, does it need to be adjusted to make way for other commitments, or can you cut out other activities to make more time to study? You *can* get your high school equivalency degree, but you've got to commit to your studies.

SECTION 3: RATION & PROPORTION (Part I)

Lesson 1: Practice 1, Section A, q1-5, Section B, q10-12, Practice 1.2, A q1-5, B q17-19

PRACTICE 1.1

A. Write each ratio as a fraction in lowest terms.

1. Stan made 24 sales in 6 hours. What is the ratio of sales to hours? → $\frac{4}{1} = 4:1$
2. Carol's monthly take-home pay is $1500. She spends $250 a month on food. What is the ratio of food costs to take-home dollars? → $\frac{6}{1} = 6:1$
3. A toy rocket travels 180 ft in 15 sec. What is the ratio of feet to seconds? → $\frac{12}{1} = 12:1$
4. At Phil's work, there are 12 part-time workers and 18 full-time workers. What is the ratio of part-time workers to total workers? → $\frac{2}{5} = 2:5$
5. Juanita drove 336 miles on 14 gallons of gasoline. What is the ratio of miles to gallons? $\frac{24}{1} = 24:1$
6. Lynn estimates that a roofing job will cost $1500. Bo estimates that the same job will cost $2400. What is the ratio of Lynn's estimate to Bo's estimate?
7. A basketball player attempted 32 free throws and made 20. What is the ratio of free throws made to free throws missed?
8. There are 10 men and 14 women in Kathleen's math class. What is the ratio of women to the total number of students in the class?
9. To paint his apartment, Alex bought 6 gallons of paint to cover 1440 square feet. What is the ratio of square feet to gallons of paint?

B. Choose the one best answer to each question.

Questions 10 through 12 refer to the following information.

Three candidates are running for mayor. Below are the results of a survey of 600 registered voters.

Candidate	Number of Supporters
Stothard	220
Mesa	180
Newmark	50
Undecided	150

10. What is the ratio of Mesa's supporters to Stothard's supporters?
    A. 9:11
    B. 11:9
    C. 11:20
    D. 20:11

11. What is the ratio of voters who prefer Mesa to the total number surveyed?
    A. 3 to 7
    B. 3 to 10
    C. 3 to 13
    D. 11 to 30

12. What is the ratio of undecided voters to voters who have made a decision?
    A. $\frac{1}{4}$
    B. $\frac{1}{3}$
    C. $\frac{3}{1}$
    D. $\frac{4}{1}$

13. Soan made a $400 down payment on a washer and dryer that cost a total of $1200. What is the ratio of the amount Soan has paid to the amount he still owes?
    A. 1 to 4
    B. 1 to 3
    C. 1 to 2
    D. 2 to 3

14. A team played 77 games and won 56 of them. There were no tied games. What is the ratio of wins to losses?
    A. 3:8
    B. 8:11
    C. 11:8
    D. 8:3

PRACTICE 1.2

A. Solve for the missing term in each proportion problem. You MAY use your calculator for questions 9 through 16. *Note*: Answers will not always be whole numbers.

1. $\frac{2}{3} = \frac{x}{18}$ $x = 12$
2. $\frac{3}{5} = \frac{27}{x}$ $x = 45$
3. $\frac{6}{5} = \frac{3}{x}$ $x = 2.5$
4. $\frac{15}{2} = \frac{x}{8}$ $x = 60$
5. $\frac{4}{\$212} = \frac{7}{x}$ $x = 371$
6. $\frac{25}{6} = \frac{400}{x}$
7. $\frac{7}{30} = \frac{x}{9}$
8. $\frac{0.5}{12} = \frac{3}{x}$
9. $\frac{20}{2.5} = \frac{100}{x}$
10. $\frac{\$5.96}{2} = \frac{x}{3}$
11. $\frac{12}{5} = \frac{3}{x}$
12. $\frac{4}{60} = \frac{2.5}{x}$
13. $\frac{3}{19} = \frac{x}{114}$
14. $\frac{9}{\$80.10} = \frac{x}{\$284.80}$
15. $\frac{\$26.00}{4} = \frac{x}{7}$
16. $\frac{24}{96} = \frac{7}{x}$

B. Choose the one best answer to each question. You MAY use your calculator for questions 20 through 22.

17. A store is advertising the following sale:

> Tomato Soup
> 4 cans for $0.98

To the nearest cent, how much would five cans of tomato soup cost?

A. $0.25
B. $1.23
C. $2.45
D. $4.90

18. The Bay City Cardinals have won 5 out of 8 games. At the same rate, how many games will they have to play to win 60 games?

A. 180
B. 120
C. 96
D. 12

19. Carla drove her truck 414 miles on 18 gallons of gasoline. How many miles did she drive per gallon?

A. 18
B. 23
C. 74
D. 95

20. The scale on a map reads, "2 cm = 150 km." How many kilometers would be represented by a distance of 4.6 centimeters?

A. 300
B. 345
C. 690
D. 1380

21. Two ingredients in a recipe are $2\frac{1}{2}$ cups of flour and $1\frac{1}{2}$ cups of sugar. If June keeps the proportion the same, how many cups of flour should she add to 4 cups of sugar?

A. $6\frac{2}{3}$
B. 6
C. 5
D. $3\frac{3}{4}$

22. Claudia drove 155 miles in 2.5 hours. Which of the following expressions could be used to find how many miles she can drive in 7 hours?

A. $155 \times 7 \div 2.5$
B. $2.5 \times 7 \div 155$
C. $155 \times 2.5 \div 47$
D. $7 \times 2.5 \times 155$

STUDY ADVICE

Proportions are useful in many ways. If you've ever doubled a recipe or thought about how much it would cost to fill up your car with gas, you've used proportions:

$$\frac{2\text{c flour}}{1\text{ batch}} = \frac{4\text{c flour}}{2\text{ batches}} \quad \text{or} \quad \frac{\$3.99}{1\text{ gallon}} = \frac{\$39.90}{10\text{ gallons}}$$

Proportions simply ask you to apply these real-world concepts.