WORKSHEET ANSWER KEY

Student Worksheet 1:
Stardom: Just a Fraction Away

1. Fraction: 1/4 + 1/4 + 1/4 + 1/4 = 1
   Decimal: 0.25 + 0.25 + 0.25 + 0.25 = 1
   Percentage: 25% + 25% + 25% + 25% = 100%

2a. Fraction | Decimal | Percentage
             Pepperoni: 8/16 or 1/2 | 0.50 | 50%
             Sausage: 4/16 or 1/4 | 0.25 | 25%
             Onion: 2/16 or 1/8 | 0.125 | 12.5%
             Broccoli: 1/16 | 0.0625 | 6.25%
             Cheese Only: 1/16 | 0.0625 | 6.25%

2b. Answers will vary, but the gist is that the fractions represent parts of the same whole and since we have all the parts, they must equal 1, the whole, when added together.

2c. 12/16 = 3/4 = 0.75 = 75%

3. Fraction | Decimal | Percentage
            Band: $6 6/16 or 3/8 | 0.375 | 37.5%
            Record Label: $4 4/16 or 1/4 | 0.25 | 25%
            Record Store: $3 3/16 | 0.1875 | 18.75%
            Producer: $2 2/16 or 1/8 | 0.125 | 12.5%
            Manager Ralph: $1 1/16 | 0.0625 | 6.25%
            Total: $16 16/16 or 1 | 1.00 | 100%

BONUS:
a. The band is now getting 6/18 or 1/3 of sales expressed as 0.33 as a decimal and 33.3% as a percentage.

b. The fraction would be the easiest to work with in a calculation because we don’t have a method to multiply by a decimal or percentage with a repeating digit.

Bonus Worksheet 1:
Ratio Radio

1. To figure out how many songs of each type of song The Conversions should play in an hour-long set, students need to set up a proportion with each ratio (or fraction) in the Ratio Radio chart.

<table>
<thead>
<tr>
<th>Songs per Hour</th>
<th>Fraction</th>
<th>Decimal</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast Rock:</td>
<td>144/24 = x/1 or 6</td>
<td>1/2</td>
<td>0.5</td>
</tr>
<tr>
<td>Slow Rock:</td>
<td>72/24 = x/1 or 3</td>
<td>1/4</td>
<td>0.25</td>
</tr>
<tr>
<td>Rap:</td>
<td>48/24 = x/1 or 2</td>
<td>1/6</td>
<td>0.166</td>
</tr>
<tr>
<td>Country Crossover:</td>
<td>24/24 = x/1 or 1</td>
<td>1/12</td>
<td>0.083</td>
</tr>
</tbody>
</table>

2. 5 minutes
3. 40 + 5 = 45. (8 additional songs.)
4. 4 fast and 2 slow

Student Worksheet 2:
Rock to the Top With Decimals

1. Decimal | Fraction | Percentage
           Band Seats: 0.3 | 3/10 | 30%
           Ralph’s Seat: 0.1 | 1/10 | 10%
           Dog Seats: 0.2 | 2/10 or 1/5 | 20%
           Friend Seats: 0.4 | 4/10 or 2/5 | 40%
           Total: 10 Seats: 1.0 | 10/10 or 1/1 | 100%

2. Decimal | Fraction | Percentage
            Giveaways: 0.22 | 22/100 or 11/50 | 22%
            Friends: 0.12 | 12/100 or 3/25 | 12%
            Tickets for Sale: 0.66 | 66/100 or 33/50 | 66%

3. Decimal | Fraction | Percentage
            Podcasters: 0.125 | 125/1,000 or 1/8 | 12.5%
            Out-of-Town Fans: 0.248 | 248/1,000 or 31/125 | 24.8%
            Local Fans: 0.0627 | 627/10,000 | 62.7%

BONUS:
a. 200 people: 20%; 2/10 or 1/5
b. 50 people: 5%; 5/100 or 1/20
c. 1 person: 0.1%; 1/1000
d. Decimals are generally easier to use for multiplication because it’s simply a matter of completing the calculation and placing the decimal point in the correct place. With fractions, the number

would have to be converted to a fraction (e.g., 1,000/1) and the numerators and denominators multiplied, and then the fraction would have to be simplified. When a percentage is known, it is usually converted to a decimal for ease of multiplication.

e. Two customers would probably want socks. First, multiply 0.001 (the part of the mailing list wanting socks) by 1,800 to arrive at a product of 1.8. Since there is no such thing as 1.8 people, rounding to 2 would be reasonable in this case.

Bonus Worksheet 2:
Driving with Decimals/Mapping With Proportions

1. 1.0/100 = 2.1/x. 100 x 2.1 = 210 miles.
2. 1.0/100 = 0.9/x. 100 x 0.9 = 90 miles.
3. 1.0/100 = 1.8/x. 100 x 1.8 = 180 miles.
4. To figure out how many hours it takes between cities at 60 mph, divide the total number of miles in questions 1–3 by 60.
   New York to Boston: 3.5 hours (210/60)
   Boston to Hartford: 1.5 hours (90/60)
   Hartford to Philadelphia: 3 hours (180/60)

Extra Bonus: 1/1.02 = x/800, x = $784.
WORKSHEET ANSWER KEY (continued from previous page)

Student Worksheet 3: Show Me the Money With Percentages

1. The Band’s Average Monthly Budget

<table>
<thead>
<tr>
<th>INCOME</th>
<th>Per Month</th>
<th>Percentage</th>
<th>Decimal</th>
<th>Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shows</td>
<td>$250</td>
<td>62.5%</td>
<td>0.625</td>
<td>250/400 or 5/8</td>
</tr>
<tr>
<td>CD Sales</td>
<td>$100</td>
<td>25%</td>
<td>0.25</td>
<td>100/400 or 1/4</td>
</tr>
<tr>
<td>T-Shirt Sales</td>
<td>$50</td>
<td>12.5%</td>
<td>0.125</td>
<td>50/400 or 1/8</td>
</tr>
<tr>
<td>Total</td>
<td>$400</td>
<td>100%</td>
<td>1.00</td>
<td>400/400 or 1/1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPENSES</th>
<th>Per Month</th>
<th>Percentage</th>
<th>Decimal</th>
<th>Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehearsal Room</td>
<td>-$100</td>
<td>40%</td>
<td>0.40</td>
<td>100/250 or 2/5</td>
</tr>
<tr>
<td>Equipment and Insurance</td>
<td>-$60</td>
<td>24%</td>
<td>0.24</td>
<td>60/250 or 6/25</td>
</tr>
<tr>
<td>Touring Van (gas/repairs):</td>
<td>-$65</td>
<td>26%</td>
<td>0.26</td>
<td>65/250 or 13/50</td>
</tr>
<tr>
<td>Publicity (posters, etc.):</td>
<td>-$25</td>
<td>10%</td>
<td>0.10</td>
<td>25/250 or 1/10</td>
</tr>
<tr>
<td>Total</td>
<td>-$250</td>
<td>100%</td>
<td>1.00</td>
<td>250/250 or 1/1</td>
</tr>
</tbody>
</table>

2. $150 is 37.5% of $400; 0.375; 150/400 or 3/8
3. Money for charity: $150 x 0.25 = $37.50
   Money for savings: $112.50

4. 100% - 25% - 37.5% = 37.5%. Convert 37.5% to 3/8, which equals 0.375.
5. 60%. The dollar increase is $400 - $250 = $150. The percentage increase is $150/$250 = 3/5 = 0.6 = 60%.

BONUS: Ralph is incorrect. Income from sock sales is $2, while total income is $400. The fraction of total sales coming from socks is 2/400 = 1/200. In decimal form, that equals 0.002. Moving the decimal point two places to the right gives a percentage of 0.2% (not 5%), which is pronounced “two-tenths of one percent.”

Bonus Worksheet 3: Time and Money—It’s a Matter of Math

1. 40%: 0.40; 2/5
2. 60%: 0.60; 3/5
3. 12.5%: 0.125; 1/8
4. A full house would mean 100% full. The proportion is 42/70 (or 6/10) = x/100. The answer is 60 people. If the house is 105% full, then the proportion is 105/60 (or 5/3) = 105/x. The answer is 63 people. A more simple solution is 1.05 x 60 = 63.