


**Answer Key**

1.	$p = 33.3\%$ $r = \frac{\sqrt{2}}{2}$ $q = \frac{1}{3}$ $s = \frac{\pi}{4}$
2.	
3.	$[8 + (-4)^3] - [-2(12 + 3) \div 3] = [8 + (-64)] - [-2(15) \div 3]$ $= [8 - 64] - [-30 \div 3]$ $= -56 - (-10)$ $= -56 + 10$ $= -46$
4.	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>(a) <math>3 + 4^2 \div 2 + \sqrt[3]{8} \times (2 - 8)</math>  <math>= 3 + 16 \div 2 + 2 \times (-6)</math>  <math>= 3 + 8 + (-12) = -1</math></p> </div> <div style="width: 45%;"> <p>(b) <math>\left[1\frac{2}{3} + \left(-\frac{1}{6}\right)\right] \div \frac{6}{7} \times \left(1\frac{4}{5} - 2\frac{3}{10}\right)</math>  <math>= \frac{3}{2} \div \frac{6}{7} \times \left(-\frac{1}{2}\right)</math>  <math>= \frac{7}{4} \times \left(-\frac{1}{2}\right) = -\frac{7}{8}</math></p> </div> </div>
5.	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>(a) Time difference = <math>8 + 3 = 11</math> hours                      Rio de Janeiro 16 00, 13 July  <math>16\ 00 + 11\ 00 = 27\ 00</math>  <math>27\ 00 - 24\ 00 = 03\ 00 (+1)</math>  <math>\therefore</math> Singapore 0300, 14 July</p> </div> <div style="width: 45%;"> <p>(b) Flight time = 30h = 1 day 6h                      Reached Rio de Janeiro at SG time:                      12 July at 17 00 + 1 day 6h  <math>= 13\ \text{July}\ 23\ 00</math> <u>OR</u>                      Reached Rio de Janeiro                      at Rio de Janeiro time                      13 July 23 00 – 11 00  <math>= 13\ \text{July}\ 12\ 00</math>  <math>\therefore</math> he is in time to watch the soccer game.</p> </div> </div>
6.	<p>Fraction that were teachers &amp; parents = <math>1 - \frac{11}{15} = \frac{4}{15}</math></p> <p>Fraction that were parents = <math>\frac{1}{4} \times \frac{4}{15} = \frac{1}{15}</math></p> <p>Fraction that were teachers = <math>\frac{4}{15} - \frac{1}{15} = \frac{3}{15} = \frac{1}{5}</math></p>
7.	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">(a) 422499</div> <div style="width: 45%;">(b) 421500</div> </div>
8.	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">(a) <math>\frac{125}{5000} \times 100\% = 2.5\%</math></div> <div style="width: 45%;">(b) <math>\frac{4.5}{100} \times \\$8 = \\$0.36</math></div> </div>
9.	<p>80% → \$80</p> <p>1% → \$1</p> <p>120% → \$120</p>

<b>10.</b>	(a) $107\% \rightarrow \$2675$ $100\% \rightarrow \mathbf{\$2500}$ (c) $100\% \rightarrow \$2500$ $95\% \rightarrow \mathbf{\$2375}$	(b) $\text{GST} = \$2675 - \$2500$ $= \mathbf{\$175}$ (d) $\text{GST} = 7\% \times \$2375$ $= \mathbf{\$166.25}$
<b>11.</b>	(a) (i) $7 \text{ parts} \rightarrow 2.8l$ $1 \text{ part} \rightarrow 0.4l$ $5 \text{ parts} \rightarrow 2l$ (ii) $15 \text{ parts} \rightarrow 6l$	(b) $\text{mango:orange}$ $2:3$ $8:12$ $\text{orange:lemonade}$ $4:3$ $12:9$ $\text{mango:orange:lemonade}$ $= 8:12:9$
<b>12.</b>	(a) $\text{Marcus:Ali:Tan}$ $11 : 4 : 1$ $4 - 1 = 3$ $3 \text{ units} = \$4.80$ $1 \text{ unit} = \$4.80 \div 3 = \$1.60$ $11 + 4 + 1 = 16$ $16 \text{ units} = \$1.60 \times 16 = \$25.60$ The sum of money shared by the three of them is \$25.60	(b) $\text{Marcus : Ali : Tan}$ $26 : 139 : 91$ At first, $\text{Marcus} = \$1.60 \times 11 = \$17.60$ $\$17.60 - \$2.60 = \$15.00$ $\$15.00 \div 2 = \$7.50$ Ali and Tan received \$7.50 each. $\text{Ali} = (\$1.60 \times 4) + \$7.50 = \$13.90$ $\text{Tan} = \$1.60 + \$7.50 = \$9.10$ $\text{Marcus : Ali : Tan}$ $2.60 : 13.90 : 9.10$ $26 : 139 : 91$