

# Answers

## TEST FOUR

121. (B)  $(7 \times 10^3) = 7000$

$$(4 \times 10^2) = 400$$

$$5 = 5$$

$$7000 + 400 + 5 = 7405$$

122. (D) The area of a triangle is equal to one-half the product of the length of the base and the length of the altitude, or  $A = \frac{1}{2}bh$ .

In this case,  $b = 8$  and  $h = 9$

$$\text{Area} = \frac{1}{2}(8)(9) = 36 \text{ square inches}$$

123. (D) To find the average rate of speed we divide the distance covered by the time consumed.

$$1260 \div 3\frac{1}{2} = 1260 \div \frac{7}{2}$$

$$1260 \div \frac{7}{2} = 1260 \times \frac{2}{7} = 360 \text{ miles per hour}$$

124. (A)  $6 + x^2 = 70$

$$x^2 = 70 - 6 = 64$$

$$x = 8$$

125. (A) Let  $x$  = cost of TV set

$$0.15x = 57$$

$$x = \frac{57}{0.15} = \frac{5700}{15} = \$380$$

$$380 - 57 = \$323$$

126. (B)  $\frac{1}{2}'' = 80$  miles

$$1'' = 2(80) = 160 \text{ miles}$$

$$3\frac{1}{4}'' = \frac{13}{4}(160) = 520 \text{ miles}$$

127. (A)  $520 \times 10 = \$5200$  for orchestra seats.  $7000 - 5200 = \$1800$  for balcony seats

Since each balcony seat sold for \$5, the number of balcony seats sold was  $1800 \div 5 = 360$ .

128. (C) Area of the rectangle =  $20 \times 5 = 100$  square feet  
 Let  $x$  = measure of a side of the square  
 Then  $x^2 = 100$   
 $x = 10$  feet

129. (B)  $7850 - 2000 = \$5850$   
 $8\%$  of  $5800 = 0.08 \times 5850 = 468$   
 $468 + 40 = \$508$

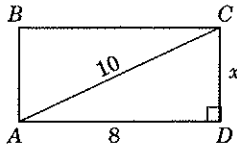
130. (B) Let  $x$  = number of girls in the class  
 And  $x + 18$  = number of boys in the class  
 Number of girls + number of boys = 320  
 The equation is  $x + x + 18 = 320$ .

131. (D) Probability of selecting a white shirt  

$$= \frac{\text{number of white shirts}}{\text{total number of shirts}} = \frac{8}{8+3} = \frac{8}{11}$$

132. (B)  $3x + y = 14$   
 $3x - y = 10$   
 Adding, we have  $6x = 24$ ,  $x = 4$ .  
 Since  $3x + y = 14$ , we have  
 $3(4) + y = 14$   
 $12 + y = 14$   
 $y = 14 - 12 = 2$

133. (A) In the right triangle ABC



we have  $x^2 + 8^2 = 10^2$   
 $x^2 + 64 = 100$   
 $x^2 = 100 - 64 = 36$   
 $x = 6$

Area =  $6 \times 8 = 48$  square inches.

134. (D)  $\frac{3}{4}$  of the job takes 12 hours.  
 $\frac{1}{4}$  of the job takes  $12 \div 3 = 4$  hours.  
 $\frac{4}{4}$ , or the whole job, takes  $4 \times 4 = 16$  hours.  
 $16 - 12 = 4$  more hours needed to finish the job.

135. (A) Area of circle =  $\pi r^2$   
 Area of semicircle =  $\frac{1}{2}\pi r^2$   
 $39.25 = \frac{1}{2}(3.14)r^2 = 1.5\pi r^2$   
 $r^2 = 39.25 = 1.57$   
 $r^2 = 25$   
 $r = 5$  inches

136. (C) Let  $x$  = rate of slower car  
 And  $x + 10$  = rate of faster car  
 $3x$  = distance covered by slower car in 3 hours  
 $3(x + 10)$  = distance covered by faster car in 3 hours  
 Sum of distances =  $3x + 3(x + 10)$   
 $3x + 3(x + 10) = 240$   
 $3x + 3x + 30 = 240$   
 $6x = 240 - 30 = 210$   
 $x = 35$  miles per hour

137. (C) 3 pounds 6 ounces =  $3\frac{6}{16}$  pounds, or  $3\frac{3}{8}$  pounds  
 $3\frac{3}{8} = \frac{27}{8}$   
 $\frac{27}{8} \times 3.12 = \$10.53$

138. (C)  $30\%$  of  $50 = 0.3 \times 50 = 15$  gallons of acid in original mixture  
 Amount of acid in new mixture =  $15 + 20 = 35$  gallons  
 Amount of new mixture =  $50 + 20 = 70$  gallons  
 $\frac{35}{70} = \frac{1}{2} = 50\%$  acid in new mixture

139. (A) \$2880 is earned in  $6 \times 8 = 48$  man-days of work  
 $\$2880 \div 48 = \$60$  = amount earned by 1 man in 1 day  
 12 men will earn  $5 \times 12 = 60(60) = \$3600$  in 5 days

140. (C) Area of garden plot =  $180 \times 60 = 10,800$  square feet  
 Area of each square is  $20 \times 20 = 400$  square feet  
 $10,800 \div 400 = 27$

141. (B)  
 $AB = AC - BC$   
 $AB = 30 - 12 = 18$   
 $CD = BD - BC$   
 $CD = 40 - 12 = 28$   
 $AD = AB + BC + CD$   
 $AD = 18 + 12 + 28 = 58$

142. (D)  $xy + 12 = 40$   
 Since  $y = 4$ , we have  
 $4x + 12 = 40$   
 $4x = 40 - 12 = 28$   
 $x = 7$   
 $x + y = 7 + 4 = 11$

143. (C) Let  $n = 4$   
 (A)  $2n = 8$  (incorrect)  
 (B)  $3n = 12$  (incorrect)  
 (C)  $2n + 1 = 9$  (correct)  
 (D)  $n + 4 = 8$  (incorrect)
144. (D)  $8:40 + 5:30 = 13:70 = 14:10$  or  $2:10$  P.M.  
 $14:10 + 0:15 = 14:25$  or  $2:25$  P.M.  
 $14:25 + 0:50 = 14:75$   
 $= 15:15$  or  $3:15$  P.M.

145. (B)  $a^2 = \left(\frac{1}{3}\right)^2 = \frac{1}{9}$   
 $b^2 = \left(\frac{1}{2}\right)^2 = \frac{1}{4}$   
 $ab = \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$   
 $\frac{1}{9} + \frac{1}{6} + \frac{1}{4} = \frac{4+6+9}{36} = \frac{19}{36}$

146. (A) The football circle and the baseball circle intersect so that the numbers 12 and 8 appear in both circles.  
 $12 + 8 = 20$

147. (D) 50 miles in 60 minutes  
 1 mile in  $\frac{60}{50}$  minutes =  $\frac{6}{5}$  minutes

148. (B) \$10.48 for 8 gallons  
 $10.48 \div 8 = \$1.31$  per gallon  
 $1.31 \times 12 = \$15.72$

149. (C)  $x + 5 = y + 3$   
 $x - y = 3 - 5 = -2$

Multiplying both sides of the equation by  $-1$ , we have

$-x + y = 2$ , or  $y - x = 2$   
 $y = x + 2$

This equation indicates that  $y$  is 2 units greater than  $x$ .

150. (A)  $0.47 \times 69.8 = 47 \times \square$   
 $\square = \frac{0.47 \times 69.8}{47}$   
 $47 = 100(0.47)$

Therefore,  $\square = \frac{69.8}{100} = 0.698$

151. (A) Total games won =  $30 + \frac{1}{2}(10) = 30 + 5 = 35$

Total games played =  $30 + 10 + 10 = 50$   
 $\frac{35}{50} = \frac{70}{100} = 70\%$

152. (C) Perimeter =  $2l + 2w$   
 where  $l$  = length and  $w$  = width  
 Perimeter =  $2(4x + 5) + 2(x + 10)$   
 Perimeter =  $8x + 10 + 2x + 20$   
 Perimeter =  $10x + 30$  feet

153. (B)  $s = 16t^2$   
 $s = 16\left(\frac{1}{4}\right)\left(\frac{1}{4}\right)$   
 $s = 16\left(\frac{1}{16}\right) = 1$

154. (B) Let  $x$  = total enrollment  
 $0.30x = 120$   
 $x = \frac{120}{0.3} = \frac{1200}{3} = 400$

155. (C) (A)  $-6 > -2$  (false)  
 (B)  $5 > -3 > 2$  (false since  $-3$  is not greater than 2)  
 (C)  $4 > 2 > -1$  (true since  $4 > 2$  and  $2 > -1$ )

156. (A)  $C = 2\pi r$ . In this case,  
 $12\pi = 2\pi r$  and  $r = 6$   
 Area =  $\pi r^2$ . In this case,  
 Area =  $\pi \times 6 \times 6 = 36\pi$

157. (C) Let  $x$  = Bill's hourly pay  
 And  $x + 3$  = John's hourly pay  
 Then  $8x$  = Bill's daily pay  
 And  $8(x + 3)$  = John's daily pay  
 $8x + 8(x + 3) = 170$

158. (C) 3 yards 2 feet 5 inches  
- 1 yard 1 foot 7 inches

If we exchange 2 feet in the upper measure to 1 foot + 12 inches, we have

3 yards 1 foot 17 inches  
- 1 yard 1 foot 7 inches

Now we subtract to obtain  
 2 yards 10 inches

159. (A)  $75\%$  of  $80,000 = 60,000$   
 $= 600$  hundreds  
 $600(0.55) = \$330$

160. (B)  $\frac{1}{2}\left(\frac{1}{3} + \frac{1}{4}\right) = \frac{1}{6} + \frac{1}{8}$   
 The least common denominator is 24.

$\frac{1}{6} + \frac{4}{24}, \frac{1}{8} = \frac{3}{24}$

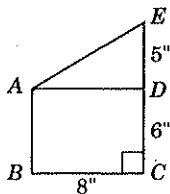
$\frac{1}{6} + \frac{1}{8} = \frac{7}{24}$

161. (D)  $2x + 3 = 11$   
 $2x = 11 - 3 = 8$   
 $x = 4$   
 $10 - x = 10 - 4 = 6$

162. (C)  $\frac{210}{42} = 5$  hours

163. (B)  $142 - 100 = 42$  miles to be paid for  
 $42(0.18) = \$7.56$   
 $37 + 7.56 = \$44.56$

164. (B) Area of rectangle  $ABCD = 48$   
square inches  
Area of triangle  $ADE = \frac{1}{2}(8 \times 5) = 20$   
square inches



Area of entire figure =  $48 + 20 = 68$   
square inches

165. (B)  $\frac{5}{8}$  of the ovens were sold the first  
day

$\frac{3}{8}$  of the ovens were left

$\frac{2}{8} \times \frac{3}{8} = \frac{1}{4}$  of the ovens were sold the  
second day

$\frac{5}{8} + \frac{1}{4} = \frac{5}{8} + \frac{2}{8} = \frac{7}{8}$  of the ovens were  
sold the first two days, and  $\frac{1}{8}$  of the  
ovens were left unsold.

Let  $x$  = number of ovens put on sale.

$$\frac{1}{8}x = 15$$

$$x = 8(15) = 120$$

166. (B)  $3x - 2 = 16$

$$3x = 16 + 2 = 18$$

$$x = 6$$

$$\text{Then } 2x + 5 = 2(6) + 5 = 17$$

167. (C) If the sum of two numbers is  $y$  and  
one of the numbers is 5, the other  
number is  $y - 5$ . Three times the other  
number is  $3(y - 5)$ .

168. (D) Let  $x$  = the number

$$30\% = 0.3$$

$$0.3x = 12$$

$$3x = 120$$

$$x = 40$$

169. (A) Let  $x$  = amount of sugar to be used  
We make the proportion

$$\frac{4}{6} = \frac{1\frac{1}{2}}{x}$$

$$4x = 6\left(1\frac{1}{2}\right)$$

$$4x = 9$$

$$x = \frac{9}{4} = 2\frac{1}{4}$$

170. (B)  $\frac{1}{4}x = 20$

$$x = 80$$

$$\frac{3}{8}x = \frac{3}{8}(80) = 30$$