Answers to

1) 6 hours
2) 1 hour
3) 45 mph
4) 5 hours
5) 5 mph
6) 2 hours
7) 6 hours
8) 5 hours
9) 40 mph
10) 5 hours
11) 60 mph
12) 10 mph
13) 14 hours
14) 4 hours
15) 2 hours
16) 78 km/h
17) 50 km/h
18) 5 hours
19) 30 mph
20) 60 km/h
21) 6 hours
22) 42 mph
23) 5 hours
24) 5 hours
25) 3 hours
26) 47 km/h
27) 30 mph
28) 1 hour
29) 11 hours
30) 16 km/h
31) 42 km/h
32) 330 km/h
33) 18 hours
34) 4 hours
35) 65 mph
36) 30 km/h
37) 30 km/h
38) 6 hours
39) 3 hours
40) 10 km/h
41) 55%
42) 19%
43) $12/kg
44) $3/kg
45) 51%
46) 79%
47) $4/kg
48) 36%
49) 35%
50) 36%
51) 9 oz.
52) 10 m^3
53) 5 lb.
54) 2 gal.
55) 4 L
56) 7 gal.
57) 10 kgs
58) 9 qt.
59) 2 qt.
60) 3 L
61) 50%
62) 30%
63) 56%
64) 15%
65) $6/kg
66) 75%
67) 10%
68) 2%
69) 85%
70) $2/lb
71) 2 lb. of 75% platinum, 7 lb. of 30% platinum
72) 1 lb. of 26% gold, 5 lb. of 44% gold
73) 12 lbs. of Brand A, 6 lbs. of Brand B
74) 8 gal. of 80% solution, 12 gal. of 5% solution
75) 6 ft^3 with 17% clay, 3 ft^3 with 53% clay
76) 11 qt. of 70% solution, 9 qt. of 50% solution
77) 10 lb of cane molasses, 5 lb of beet molasses
78) 9 yd^3 with 20% silt, 1 yd^3 with 40% silt
79) 6 m^3 with 40% clay, 4 m^3 of clay
80) 12 oz. of 83% gold, 8 oz. of 23% gold
81) 6.35 minutes
82) 4.63 hours
83) 5.32 hours
84) 4.74 hours
85) 5.14 hours
86) 6 hours
87) 5.74 hours
88) 4.24 hours
89) 5.33 hours
90) 7.24 hours
91) 8.02 hours
92) 16.01 hours
93) 8 hours
94) 13.99 hours
95) 15.02 hours
96) 7.99 hours
97) 11 hours
98) 11.98 hours
99) 15.04 minutes
100) 8 hours
101) 7.99 minutes
102) 4.8 hours
103) 5.74 hours
104) 14.01 hours
105) 4.95 hours
106) 12.99 hours
107) 10.99 hours
108) 13.99 hours
109) 4.44 hours
110) 8.99 hours
111) 9.98 hours
112) 10.01 hours
113) 6.52 hours
114) 6.35 hours
115) 10.01 hours
116) 7.99 hours
117) 6 minutes
118) 16.02 hours
119) 8.01 hours
120) 5.09 minutes

121) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(120 - 0.05x) - (40x + 6000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 800

122) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(150 - 0.05x) - (70x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 800

123) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(120 - 0.05x) - (50x + 6000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 700

124) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(150 - 0.1x) - (70x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 400

125) A = the total area of the two corrals x = the length of the non-adjacent sides of each corral
Function to maximize: $A = 2x \cdot \frac{200 - 4x}{3}$ where $0 < x < 50$
Dimensions of each corall: 25 ft (non-adjacent sides) by $\frac{100}{3}$ ft (adjacent sides)

126) V = the volume of the box x = the length of the sides of the squares
Function to maximize: $V = (16 - 2x)(10 - 2x) \cdot x$ where $0 < x < 5$
Sides of the squares: 2 in

127) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(160 - 0.05x) - (80x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 800

128) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(120 - 0.1x) - (60x + 4000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 300

129) A = the total area of the two corrals x = the length of the non-adjacent sides of each corral
Function to maximize: $A = 2x \cdot \dfrac{500 - 4x}{3}$ where $0 < x < 125$
Dimensions of each corall: $\dfrac{125}{2}$ ft (non-adjacent sides) by $\dfrac{250}{3}$ ft (adjacent sides)

130) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(160 - 0.1x) - (60x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 500

131) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(140 - 0.1x) - (60x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 400

132) V = the volume of the box x = the length of the sides of the squares
Function to maximize: $V = (30 - 2x)(14 - 2x) \cdot x$ where $0 < x < 7$
Sides of the squares: 3 in

133) A = the area of the pigpen x = the length of the sides perpendicular to the stone wall
Function to maximize: $A = x(300 - 2x)$ where $0 < x < 150$
Dimensions of the pigpen: 75 ft (perpendicular to wall) by 150 ft (parallel to wall)

134) A = the area of the pigpen x = the length of the sides perpendicular to the stone wall
Function to maximize: $A = x(400 - 2x)$ where $0 < x < 200$
Dimensions of the pigpen: 100 ft (perpendicular to wall) by 200 ft (parallel to wall)

135) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(110 - 0.1x) - (60x + 4000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 250

136) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(150 - 0.05x) - (60x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 900

137) P = the product of the two numbers x = the positive number
Function to minimize: $P = x(x - 5)$ where $-\infty < x < \infty$
Smallest product of the two numbers: $-\dfrac{25}{4}$

138) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(120 - 0.1x) - (40x + 4000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 400

139) A = the area of the pigpen x = the length of the sides perpendicular to the stone wall
Function to maximize: $A = x(500 - 2x)$ where $0 < x < 250$
Dimensions of the pigpen: 125 ft (perpendicular to wall) by 250 ft (parallel to wall)

140) A = the total area of the two corrals x = the length of the non-adjacent sides of each corral

Function to maximize: $A = 2x \cdot \dfrac{400 - 4x}{3}$ where $0 < x < 100$

Dimensions of each corall: 50 ft (non-adjacent sides) by $\dfrac{200}{3}$ ft (adjacent sides)

141) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(130 - 0.05x) - (40x + 6000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 900

142) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(150 - 0.1x) - (80x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 350

143) P = the product of the two numbers x = the positive number
Function to minimize: $P = x(x - 8)$ where $-\infty < x < \infty$
Smallest product of the two numbers: -16

144) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(120 - 0.1x) - (50x + 4000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 350

145) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(140 - 0.05x) - (60x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 800

146) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(110 - 0.05x) - (40x + 6000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 700

147) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(140 - 0.1x) - (80x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 300

148) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(150 - 0.05x) - (80x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 700

149) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(160 - 0.1x) - (80x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 400

150) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(140 - 0.1x) - (70x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 350

151) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(120 - 0.05x) - (60x + 6000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 600

152) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(110 - 0.05x) - (50x + 6000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 600

153) A = the total area of the two corrals x = the length of the non-adjacent sides of each corral

Function to maximize: $A = 2x \cdot \dfrac{100 - 4x}{3}$ where $0 < x < 25$

Dimensions of each corall: $\dfrac{25}{2}$ ft (non-adjacent sides) by $\dfrac{50}{3}$ ft (adjacent sides)

154) P = the product of the two numbers x = the positive number
Function to minimize: $P = x(x-9)$ where $-\infty < x < \infty$
Smallest product of the two numbers: $-\dfrac{81}{4}$

155) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(160 - 0.05x) - (60x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 1000

156) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(140 - 0.05x) - (70x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 700

157) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(160 - 0.05x) - (70x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 900

158) A = the area of the pigpen x = the length of the sides perpendicular to the stone wall
Function to maximize: $A = x(100 - 2x)$ where $0 < x < 50$
Dimensions of the pigpen: 25 ft (perpendicular to wall) by 50 ft (parallel to wall)

159) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(110 - 0.1x) - (40x + 4000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 350

160) A = the area of the pigpen x = the length of the sides perpendicular to the stone wall
Function to maximize: $A = x(200 - 2x)$ where $0 < x < 100$
Dimensions of the pigpen: 50 ft (perpendicular to wall) by 100 ft (parallel to wall)

161) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(140 - 0.05x) - (80x + 7000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 600

162) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(130 - 0.1x) - (50x + 4000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 400

163) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(110 - 0.1x) - (50x + 4000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 300

164) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(160 - 0.1x) - (70x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 450

165) p = the profit per day x = the number of items manufactured per day
Function to maximize: $p = x(150 - 0.1x) - (60x + 5000)$ where $0 \le x < \infty$
Optimal number of smartphones to manufacture per day: 450

166) V = the volume of the box x = the length of the sides of the squares
Function to maximize: $V = (30 - 2x)(16 - 2x) \cdot x$ where $0 < x < 8$
Sides of the squares: $\dfrac{10}{3}$ in

167) P = the product of the two numbers x = the positive number
Function to minimize: $P = x(x-7)$ where $-\infty < x < \infty$
Smallest product of the two numbers: $-\dfrac{49}{4}$

168) P = the product of the two numbers x = the positive number
Function to minimize: $P = x(x-6)$ where $-\infty < x < \infty$
Smallest product of the two numbers: -9

169) A = the total area of the two corrals x = the length of the non-adjacent sides of each corral

Function to maximize: $A = 2x \cdot \frac{300 - 4x}{3}$ where $0 < x < 75$

Dimensions of each corall: $\frac{75}{2}$ ft (non-adjacent sides) by 50 ft (adjacent sides)

170) p = the profit per day x = the number of items manufactured per day

Function to maximize: $p = x(110 - 0.05x) - (60x + 6000)$ where $0 \le x < \infty$

Optimal number of smartphones to manufacture per day: 500

171) boat: 20 mph, current: 10 mph
172) Van: 18, Bus: 30
173) 58
174) bag of windflower bulbs: $4, package of crocus bulbs: $4
175) senior citizen ticket: $8, student ticket: $4
176) 86
177) boat: 24 mph, current: 8 mph
178) senior citizen ticket: $14, child ticket: $7
179) rose bush: $9, shrub: $5
180) Van: 14, Bus: 25
181) adult ticket: $5, student ticket: $11
182) Van: 12, Bus: 54
183) daylily: $2, shrub: $5
184) senior citizen ticket: $14, student ticket: $10
185) senior citizen ticket: $13, student ticket: $10
186) 69
187) boat: 12 mph, current: 4 mph
188) 47
189) rose bush: $7, pot of ivy: $2
190) 20
191) Van: 7, Bus: 44
192) senior citizen ticket: $9, child ticket: $7
193) bag of windflower bulbs: $7, bag of daffodil bulbs: $12
194) senior citizen ticket: $3, student ticket: $5
195) pecan cheesecake: $13, chocolate marble cheesecake: $19
196) Van: 11, Bus: 33
197) daylily: $3, geranium: $8
198) adult ticket: $6, student ticket: $11
199) Van: 6, Bus: 33
200) package of white chocolate chip cookie dough: $18, package of oatmeal cookie dough: $19
201) 42.4 cm
202) 16.3 feet
203) 91°
204) 44°
205) $12cm^2$
206) $9.8cm^2$
207) $150\sqrt{3} \cdot cm^2$
208) $23.05cm^2$
209) 4.2°
210) 22.4 km
211) 41°
212) 36.2 km
213) 1.42 km
214) 2969.2 km
215) 921 km
216) 437 km
217) 9.1 km, S75°W
218) 4.8 km, Yes