Lesson 4.3 Practice: The Least-Squares Regression Line

School Launch · Statistics · Unit 4: Scatterplots, Correlation and Regression · Worksheet A

Calculator / tables

Name _____ Date _____ Score _____ / 10

Show your work under each problem, one step per line, and check your answer. Word problems: name the unknown, write the equation, solve, and answer in a sentence with units.

1. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(7, 33)$, $(8, 35)$, $(15, 58)$, $(19, 69)$, then predict y at $x = 6$. EASY

2. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(6, 1)$, $(10, -8)$, $(18, -27)$, $(19, -28)$, then predict y at $x = 7$. EASY

3. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(4, 19)$, $(8, 36)$, $(10, 40)$, $(16, 60)$, then predict y at $x = 13$. EASY

4. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(4, 18)$, $(5, 21)$, $(6, 20)$, $(8, 28)$, $(15, 38)$, then predict y at $x = 14$. MEDIUM

5. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(4, 1)$, $(8, -4)$, $(10, -8)$, $(17, -22)$, $(19, -30)$, then predict y at $x = 12$. MEDIUM

6. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(1, 13)$, $(3, 20)$, $(6, 26)$, $(7, 30)$, $(9, 38)$, then predict y at $x = 8$. MEDIUM

7. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(1, 14)$, $(5, 19)$, $(6, 23)$, $(12, 36)$, $(19, 47)$, then predict y at $x = 11$. MEDIUM

8. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(4, 22)$, $(5, 28)$, $(6, 26)$, $(7, 34)$, $(9, 38)$, $(13, 49)$, then predict y at $x = 9$. HARD

9. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(3, 21)$, $(4, 19)$, $(7, 33)$, $(13, 47)$, $(15, 53)$, $(17, 58)$, then predict y at $x = 14$. HARD

10. Find the least-squares line $\hat{y} = a + bx$ (two decimals) for $(1, 13)$, $(8, 29)$, $(9, 25)$, $(11, 33)$, $(14, 37)$, $(16, 42)$, then predict y at $x = 10$. HARD