Angle Pairs: Vertical, Linear, Complementary, & Supplementary

**Vertical Angles** are opposite angles created by crossed lines (looks like an X).

**VERTICAL ANGLES ARE CONGRUENT.**

**A Linear Pair** is a set of two angles, connected at the corner & sharing a side), that, together, are a line.

**A LINEAR PAIR ADDS TO EQUAL 180˚.**

**Complementary Angles** are any two angles whose measures **ADD TO EQUAL 90˚.**

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**Supplementary Angles** are any two angles whose measures **ADD TO EQUAL 180˚.**

**Identify the type of angle pair.**

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| **EXAMPLE** $∠8 \& ∠7$Type: **LINEAR PAIR**Process: **ADD TO = 180˚** | **EXAMPLE** $∠F \& ∠P$$$m∠F=37˚ \& m∠P=53˚$$ **37+53=90**Type: **COMPLEMENTARY**Process: **ADD TO = 90˚** | **EXAMPLE**  $∠4 \& ∠3$Type: **VERTICAL ANGLES**Process: **THEY’RE EQUAL** | **EXAMPLE** $∠9 \& ∠2$$$m∠9=78˚ \& m∠2=102˚$$ **78+102=180**Type: **SUPPLEMENTARY**Process: **ADD TO = 180˚** |
| 1. $∠5 \& ∠11$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 2. $∠4 \& ∠2$$$m∠4=22˚ \& m∠2=68˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 3. $∠ABC \& ∠MNP$$$m∠ABC=90˚ $$$$\& m∠MNP=90˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 4. $∠6 \& ∠8$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 5. $∠ABD \& ∠CBD$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 6. $∠8 \& ∠10$$$m∠8=16˚ \& m∠10=164˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 7. $∠6 \& ∠9$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 8. $∠A \& ∠B$$$m∠A=81˚ \& m∠B=9˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 9. $∠3 \& ∠4$$$m∠3=74˚ \& m∠4=16˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 10. $∠KML \& ∠PMK$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 11. $∠LMN \& ∠PMK$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 12.$ ∠Q \& ∠M$$$m∠Q=107˚ \& m∠M=73˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Evaluate. Determine the measure of all of the numbered angles.**

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| 13. $m∠5=\left(9x+6\right)˚ $$$\& m∠2=\left(6x+9\right)˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $m∠2=$ \_\_\_\_\_ $m∠3=$ \_\_\_\_\_$m∠4=$ \_\_\_\_\_ $m∠5=$ \_\_\_\_\_ | 14. $m∠3=\left(8x+12\right)˚$$$\& m∠4=\left(12x-48\right)˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $m∠1=$ \_\_\_\_\_ $m∠2=$ \_\_\_\_\_$m∠3=$ \_\_\_\_\_ $m∠4=$ \_\_\_\_\_ |
| 15. $m∠6=\left(4x+1\right)˚$$$\& m∠7=\left(5x-8\right)˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $m∠6=$ \_\_\_\_\_ $m∠7=$ \_\_\_\_\_$m∠8=$ \_\_\_\_\_ $m∠9=$ \_\_\_\_\_ | 16. $m∠6=\left(6x+10\right)˚$$$\& m∠7=\left(15x+2\right)˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $m∠6=$ \_\_\_\_\_ $m∠7=$ \_\_\_\_\_ |
| 17. $m∠4=\left(11x+10\right)˚$$$\& m∠2=\left(14x-20\right)˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $m∠2=$ \_\_\_\_\_ $m∠3=$ \_\_\_\_\_$m∠4=$ \_\_\_\_\_ $m∠5=$ \_\_\_\_\_ | 18. $m∠8=\left(16x+27\right)˚$$$\& m∠6=\left(4x+13\right)˚$$Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | $m∠6=$ \_\_\_\_\_ $m∠7=$ \_\_\_\_\_$m∠8=$ \_\_\_\_\_ $m∠9=$ \_\_\_\_\_ |

**Evaluate.**

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| 19. $∠1 \& ∠2$ are complementary$m∠1=$ 72˚. $m∠3=$ ?Process: **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | 20. $∠8 \& ∠9$ are supplementary.$m∠8=$ 111˚. $m∠9=$ ? Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 21. $ ∠5 \& ∠6$ are supplementary.$m∠8=$ (4x – 2)˚ & $m∠9=$ (5x –29)˚. $$m∠8= ?$$Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 22. $∠4 \& ∠5$ are complementary$m∠4=\left(2x+20\right)˚$, $m∠5=\left(5x+7\right)˚$$$m∠4= ?$$ Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 23. $∠3 \& ∠4$ are supplementary.$m∠3=\left(8x+10\right)˚$,$m∠4=\left(10x+26\right)˚$. $m∠4= ?$Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 24. $ ∠7 \& ∠8$ are complementary.$m∠7=\left(x+42\right)˚$. $m∠8=\left(2x-42\right)˚$$$m∠7= ?$$Process: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |