**Tell whether the angles are only adjacent, adjacent and form a linear pair or not adjacent.**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.**  | $$∠OAJ and∠PAJ$$$$∠RAP and∠OAP$$$$∠RAP and∠OAJ$$$ J$ $ P $$$ O A R$$ | **2.**  | $$∠KNS and∠SNL$$$$∠LND and∠KNS$$$$∠SND and∠KNS$$$ S L$ $$ $$$K $ $ N D$ |
|  |  |  |  |

**Name a pair of adjacent complementary angles.**

|  |  |  |  |
| --- | --- | --- | --- |
| **3.** | $ B E $$ $$$ P 78° 63° $$$ 12° 27°$$ W X M$ | **4.** | $ Z E $$$ U 20°$$$ 35° 70° D$$ 55° $$$ O 41° $$$$ N $$$$ T $$ |
|  |  |  |  |

**Find the measure of each angle.**

|  |  |  |
| --- | --- | --- |
| **5.** | $m∠RHS=x+24$ $m∠FHS=2x+36$$$m∠RHS=? m∠FHS=?$$$ F $$ S \left(2x+36\right)° $$$ $$$$\left(x+24\right)° $$$ R H $ |  |
| **6.** | $m∠LKC=3x+10$ $m∠CKD=5x+48$$$m∠LKC=? m∠CKD=?$$$$ $$$ D C $$$ $$$$ \left(5x+48\right)° $$$ \left(3x+10\right)° $$$ K L $$ |  |

**Name a pair of adjacent supplementary angles.**

|  |  |  |  |
| --- | --- | --- | --- |
| **7.** | $ U $$$ $$$$ 70° 110°$$$$ G 151° N 29° E$$$$ Z $$ | **8.** | $ Y $$$ $$$ K $$ 38° $$ L$$$ 142° A $$$$ $$$$ V $$ |
|  |  |  |  |

**Find the measure of each angle.**

|  |  |  |
| --- | --- | --- |
| **8.** | $m∠ELI=x+30$ $m∠PLI=x+60$$$m∠ELI=? m∠PLI=?$$$ I $$$ $$$$ \left(x+30\right)° \left(x+60\right)° $$$$ $$$ E L P $ |  |
| **9.** | $m∠PRV=3x+45$ $m∠DRV=x+15$$$m∠PRV=? m∠DRV=?$$$$ $$$$ V $$$$ $$$$ $$$ \left(3x+45\right)° \left(x+15\right)° $$$ P R D$$ |  |

**Find the indicated angle measures.**

|  |  |  |
| --- | --- | --- |
| **10.** | $m∠CKM=56$**Find** $ m∠FKW$**,**$ m∠WKM, and m∠CKF.$$ W M $$$ 56°$$$$ K $$$ F C$  |  |
| **11.** | $m∠BCA=x+30 m∠ECB=x+40$**Find** $ m∠BCA$ **,**$ m∠ECB, m∠DCA and m∠DCE.$$ A B $$$ \left(x+30\right)° $$$$ \left(x+40\right)°$$$$ C $$$ D E$  |  |

**WORD PROBLEMS**

|  |  |  |  |
| --- | --- | --- | --- |
| **12.**  | **Find the measure of an angle and its complement, if one angle measures**$ 38°$ **more than the other.** | **13.**  | **The measure of the supplement of an angle is** $84°$ **less than the measure of the angle. Find the measures of the angles.**  |
|  | $$ $$ |  |  |
| **14.**  | **Two angles are supplementary. The measure of one angle is** $36°$ **more than twice of measure of the other angle. Find the measures of the angles.** | **15.**  | **The measure of an angle increased by** $40°$ **is equal to the measure of its complement.** |
|  |  |  | $$ $$ |

**ANSWERS**

**Tell whether the angles are only adjacent, adjacent and form a linear pair or not adjacent.**

|  |  |  |  |
| --- | --- | --- | --- |
| **1.**  | $$∠OAJ and∠PAJ$$$$∠RAP and∠OAP$$$$∠RAP and∠OAJ$$$ J$ $ P $$$ O A R$$ | **2.**  | $$∠KNS and∠SNL$$$$∠LND and∠KNS$$$$∠SND and∠KNS$$$ S L$ $$ $$$K $ $ N D$ |
|  | $$∠OAJ and ∠PAJ-adjacent$$$$∠RAP and∠OAP-adjacent and linear pair$$$$∠RAP and∠OAJ-not adjacent$$ |  | $$∠KNS and∠SNL-adjacent$$$$∠LND and∠KNS-not adjacent$$$$∠SND and∠KNS-adjacent and linear pair$$ |

**Name a pair of adjacent complementary angles.**

|  |  |  |  |
| --- | --- | --- | --- |
| **3.** | $ B E $$ $$$ P 78° 63° $$$ 12° 27°$$ W X M$ | **4.** | $ Z E $$$ U 20°$$$ 35° 70° D$$ 55° $$$ O 41° $$$$ N $$$$ T $$ |
|  | $$m∠MXE+m ∠EXB=27+63=90$$$$∠MXE and ∠EXB$$$$m∠WXP+m ∠PXB=12+78=90$$$$∠WXP and ∠PXB$$ |  | $$m∠NOU+m ∠UOZ=55+35=90$$$$∠NOU and ∠UOZ$$$$m∠DOE+m ∠EOZ=70+20=90$$$$∠DOE and ∠EOZ$$ |

**Find the measure of each angle.**

|  |  |  |
| --- | --- | --- |
| **5.** | $m∠RHS=x+24$ $m∠FHS=2x+36$$$m∠RHS=? m∠FHS=?$$$ F $$ S \left(2x+36\right)° $$$ $$$$\left(x+24\right)° $$$ R H $ | $$m∠RHS+m ∠FHS=90$$$$x+24+2x+36=90$$$$3x+60=90$$$$3x+60-60=90-60$$$$3x=30$$$$x=10$$$m∠RHS=x+24$ $m∠FHS=2x+36$$m∠RHS=10+24$ $m∠FHS=2\*10+36$$m∠RHS=34$ $ m∠FHS=20+36$ $ m∠FHS=56$ |
| **6.** | $m∠LKC=3x+10$ $m∠CKD=5x+48$$$m∠LKC=? m∠CKD=?$$$$ $$$ D C $$$ $$$$ \left(5x+48\right)° $$$ \left(3x+10\right)° $$$ K L $$ | $$m∠LKC+m∠CKD=90$$$$3x+10+5x+48=90$$$$8x+58=90$$$$8x+58-58=90-58$$$$8x=32$$$$x=4$$$m∠LKC=3x+10$ $m∠CKD=5x+48$$m∠LKC=3\*4+10$ $m∠CKD=5\*4+48$$m∠LKC=12+10$ $ m∠CKD=20+48$$m∠LKC=22 $ $ m∠CKD=68$ |

**Name a pair of adjacent supplementary angles.**

|  |  |  |  |
| --- | --- | --- | --- |
| **7.** | $ U $$$ $$$$ 70° 110°$$$$ G 151° N 29° E$$$$ Z $$ | **8.** | $ Y $$$ $$$ K $$ 38° $$ L$$$ 142° A $$$$ $$$$ V $$ |
|  | $$m∠GNU+m ∠ENU=70+110=180$$$$∠GNU and ∠ENU$$$$m∠GNZ+m ∠ENZ=151+29=180$$$$∠GNZ and ∠ENZ$$ |  | $$m∠VAK+m ∠KAY=142+38=180$$$$∠VAK and ∠KAY$$$$m∠LAY+m ∠LAV=90+90=180$$$$∠LAY and ∠LAV$$ |

**Find the measure of each angle.**

|  |  |  |
| --- | --- | --- |
| **8.** | $m∠ELI=x+30$ $m∠PLI=x+60$$$m∠ELI=? m∠PLI=?$$$ I $$$ $$$$ \left(x+30\right)° \left(x+60\right)° $$$$ $$$ E L P $ | $$m∠ELI+m∠PLI=180$$$$x+30+x+60=180$$$$2x+90=180$$$$2x+90-90=180-90$$$$2x=90$$$$x=45$$$m∠ELI=x+30$ $m∠PLI=x+60$$m∠ELI=45+30$ $m∠PLI=45+60$$m∠ELI=75$ $ m∠PLI=105$ |
| **9.** | $m∠PRV=3x+45$ $m∠DRV=x+15$$$m∠PRV=? m∠DRV=?$$$$ $$$$ V $$$$ $$$$ $$$ \left(3x+45\right)° \left(x+15\right)° $$$ P R D$$ | $$m∠PRV+∠DRV=180$$$$3x+45+x+15=180$$$$4x+60=180$$$$4x+60-60=180-60$$$$4x=120$$$$x=30$$$m∠PRV=3x+45$ $ m∠DRV=x+15$$$m∠PRV=3\*30+45 m∠DRV=30+15$$$m∠PRV=90+45$ $ m∠DRV=45$$m∠PRV=135 $ $ $ |

**Find the indicated angle measures.**

|  |  |  |
| --- | --- | --- |
| **10.** | $m∠CKM=56$**Find** $ m∠FKW$**,**$ m∠WKM, and m∠CKF.$$ W M $$$ 56°$$$$ K $$$ F C$  | $$m∠CKM=56$$$$∠CKM and ∠FKW are vertical angles$$$$m∠FKW=m ∠CKM$$$$m ∠FKW=56 $$$$m∠CKM+m∠WKM=180 $$$$m∠WKM=180-m∠CKM$$$$m∠WKM=180-56$$$$m∠WKM=124$$$$∠WKM and ∠CKF are vertical angles$$$$m∠CKF=m∠WKM$$$m∠CKF=124$ |
| **11.** | $m∠BCA=x+30 m∠ECB=x+40$**Find** $ m∠BCA$ **,**$ m∠ECB, m∠DCA and m∠DCE.$$ A B $$$ \left(x+30\right)° $$$$ \left(x+40\right)°$$$$ C $$$ D E$  | $m∠BCA=x+30 m∠ECB=x+40$$m∠BCA$ **,**$ m∠ECB, m∠DCA and m∠DCE=?$$$m∠BCA+m∠ECB=180 $$$x+30+x+40=180$$2x+70=180$$$2x+70-70=180-70$$$$2x=110$$$$x=55$$$m∠BCA=x+30 m∠ECB=x+40$$$m∠BCA=55+30 m∠ECB=55+40$$$$m∠BCA=85 m∠ECB=95$$$$∠BCA and ∠DCE are vertical angles$$$$m∠DCE=m∠BCA$$$m∠DCE=85$$$∠ECB and ∠DCA are vertical angles$$$$m∠DCA=m∠ECB$$$m∠DCA=95$ |

**WORD PROBLEMS**

|  |  |  |  |
| --- | --- | --- | --- |
| **12.**  | **Find the measure of an angle and its complement, if one angle measures**$ 38°$ **more than the other.** | **13.**  | **The measure of the supplement of an angle is** $84°$ **less than the measure of the angle. Find the measures of the angles.**  |
|  | $$m∠1=x m ∠2=x+38$$$$m∠1=? m∠2=?$$$$m∠1+m∠2=90$$$$x+x+38=90$$$$2x+38=90$$$$2x+38-38=90-38$$$$2x=52$$$$x=26$$$$m∠1=26 m ∠2=26+38 $$$$ m ∠2=64 $$ |  | $$m∠1=x m ∠2=x-84$$$$m∠1=? m∠2=?$$$$m∠1+m∠2=180$$$$x+x-84=180$$$$2x-84=180$$$$2x-84+84=180+84$$$$2x=264$$$$x=132$$$$m∠1=132 m ∠2=x-84 $$$$ m ∠2=132-84 $$$$ m ∠2= 48$$ |
| **14.**  | **Two angles are supplementary. The measure of one angle is** $36°$ **more than twice of measure of the other angle. Find the measures of the angles.** | **15.**  | **The measure of an angle increased by** $40°$ **is equal to the measure of its complement.** |
|  | $$m∠1=x m ∠2=2x+36$$$$m∠1=? m∠2=?$$$$m∠1+m∠2=180$$$$x+2x+36=180$$$$3x+36=180$$$$3x+36-36=180-36$$$$3x=144$$$$x=48$$$$m∠1=48 m ∠2=2x+36 $$$$ m ∠2=2\*48+36 $$$$ m ∠2=96+36$$$$ m ∠2=132$$ |  | $$m∠1=x m ∠2=x+40$$$$m∠1=? m∠2=?$$$$m∠1+m∠2=90$$$$x+x+40=90$$$$2x+40=90$$$$2x+40-40=90-40$$$$2x=50$$$$x=25$$$$m∠1=25 m ∠2=25+40 $$$$ m ∠2=65 $$ |