**ANSWERS**

**Name the angles in the figure.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1.**  | $$ M$$ $ T $$$ F A$$ | **2.**  | $ S L$ $K D$ $ N$ | **3.** | $ V$  $ B N S$ |
|  |  $∠AFT, ∠AFM and ∠TFM$ |  | $$∠KNS, ∠KNL, ∠KND,$$$$∠SNL,∠SND, and ∠LND$$ |  | $$∠BVN, ∠BVS and ∠NVS$$ |

**Name the vertex and sides of each angle.**

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| **4.**  | $$ R$$ $ S $$G$ | **5.**  | $ Z$ $$F$$ $ R$ | **6.** | $ U$  $ T Q$ |
|  | **Vertex** $S$**Sides** $\vec{SR} and \vec{SG}$ |  | **Vertex** $R$**Sides** $\vec{RF} and \vec{RZ}$ |  | **Vertex** $T$**Sides** $\vec{TQ} and \vec{TU}$ |

**Classify the following angles as acute, right, obtuse, or straight.**

|  |  |  |  |  |  |
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| **7.**  | $ E$ $ $$ $$ H L$ | **8.**  | $ $ $$F$$ $ R C$ | **9.** | $ T$  $ W N$ |
|  | $∠LHE$ **is a right angle** |  | $∠CRF$ **is an obtuse angle** |  | $∠NWT$ **is an acute angle** |

**Find the measure of each angle.**

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| **10.** | $m∠KDP,m∠KDM, m∠JDP, m∠KDJ =?$https://lh6.googleusercontent.com/d3-Z8ZYWIAYnzZam0k-3jKFlLrIk1cWbXDKohgIE0AaQHE_iFku1j63EeRZeEY-lqgmCiTWhbR1Dx6UAwFE2JROY53czHWpWV_XkYEaJkzlPjiB76PB8K7So4h8ttc8730E1qeRl9oM$ P$$ J$$$ K D M$$ | **11.** | $$m∠USE, m∠UST, m∠EST, m∠RST =?$$$ $https://lh6.googleusercontent.com/d3-Z8ZYWIAYnzZam0k-3jKFlLrIk1cWbXDKohgIE0AaQHE_iFku1j63EeRZeEY-lqgmCiTWhbR1Dx6UAwFE2JROY53czHWpWV_XkYEaJkzlPjiB76PB8K7So4h8ttc8730E1qeRl9oM$R$$$ T$$$$ E $$$$ S U$$ |
|  | $$m∠KDP=70 $$$$m∠KDM=180 $$$$m∠JDP=\left|130-70\right|=60$$$$m∠KDJ=130$$ |  | $$m∠USE=140 $$$$m∠UST=50 $$$$m∠EST=\left|140-50\right|=90$$$$m∠RST=\left|130-120\right|=10$$ |

**Use a protractor to draw each angle. Then classify each angle.**

|  |  |  |  |
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| **12.** | $$m∠SOG=142$$ | **13.** | $$m∠IND=55$$ |
|  | https://lh6.googleusercontent.com/d3-Z8ZYWIAYnzZam0k-3jKFlLrIk1cWbXDKohgIE0AaQHE_iFku1j63EeRZeEY-lqgmCiTWhbR1Dx6UAwFE2JROY53czHWpWV_XkYEaJkzlPjiB76PB8K7So4h8ttc8730E1qeRl9oM$$ G$$$$ O S$$ |  | https://lh6.googleusercontent.com/d3-Z8ZYWIAYnzZam0k-3jKFlLrIk1cWbXDKohgIE0AaQHE_iFku1j63EeRZeEY-lqgmCiTWhbR1Dx6UAwFE2JROY53czHWpWV_XkYEaJkzlPjiB76PB8K7So4h8ttc8730E1qeRl9oM$ D$$$ $$$ $$$ I N $$ |
|  | **Obtuse angle** |  | **Acute angle** |
| **14.** | $$m∠EFH=90$$ | **15.** | $$m∠ZXY=180$$ |
|  | $ H$ https://lh6.googleusercontent.com/d3-Z8ZYWIAYnzZam0k-3jKFlLrIk1cWbXDKohgIE0AaQHE_iFku1j63EeRZeEY-lqgmCiTWhbR1Dx6UAwFE2JROY53czHWpWV_XkYEaJkzlPjiB76PB8K7So4h8ttc8730E1qeRl9oM$$ F E$$ |  | https://lh6.googleusercontent.com/d3-Z8ZYWIAYnzZam0k-3jKFlLrIk1cWbXDKohgIE0AaQHE_iFku1j63EeRZeEY-lqgmCiTWhbR1Dx6UAwFE2JROY53czHWpWV_XkYEaJkzlPjiB76PB8K7So4h8ttc8730E1qeRl9oM$$ $$$$ $$$$ Z X Y$$ |
|  | **Right angle** |  | **Straight angle** |

**Find the indicated angle measures.**

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| **16.** | $$m∠JFG=34 m∠GFQ=43 $$$$m∠JFQ=?$$$G $$ Q$$ F J$  | $$m∠JFG=34 m∠GFQ=43 $$$$m∠JFQ=?$$$$m∠JFQ=m∠JFG+m∠GFQ$$$$m∠JFQ=34+43 $$$$m∠JFQ=77$$ |
| **17.** | $$m∠POC=132 m∠ROC=52 $$$$m∠POR=?$$$ R$$ C$$ O P$  | $$m∠POC=132 m∠ROC=52 $$$$m∠POR=?$$$$m∠POC=m∠ROC+m∠POR$$$$m∠POR=m∠POC-m∠ROC $$$$m∠POR=132-52$$$$m∠POR=80$$ |

**Find the value of** $x$ **and then the indicated angle measures.**

|  |  |  |
| --- | --- | --- |
| **16.** | **If** $m∠IFD=125$**,** $ m∠IFW=2x+15, $$m∠WFD=x-10$ **what are** $m∠IFW and m∠WFD? $$W $$ D$$ $$$ \left(x-10\right)°$$$$ \left(2x+15\right)°$$$ F I$  | $$m∠IFD=125, $$$$m∠IFW=2x+15, $$$$m∠WFD=x-10$$$$m∠IFW=? m∠WFD=? $$$$m∠IFD=m∠IFW+m∠WFD$$$$125=2x+15+x-10 $$$$125=3x+5$$$$125-5=3x+5-5$$$$120=3x$$$$x=40$$$$m∠IFW=2x+15 m∠WFD=x-10$$$$m∠IFW=2\*40+15 m∠WFD=40-10 $$$$m∠IFW=80+15 m∠WFD=30$$$$m∠IFW=95 m∠WFD=30$$ |
| **17.** | **If** $m∠PKR=62 , m∠RKS=x-12, $$and m∠PKS=3x+10$**, what are** $m∠RKS and m∠PKS? $$ R$$ S$$$ \left(x-12\right)°$$$$ 62°$$$ K P$  | $$m∠PKR=62 $$$$m∠RKS=x-12 $$$$m∠PKS=3x+10 $$$$m∠RKS=? m∠PKS=? $$$$m∠PKS=m∠PKR+m∠RKS$$$$3x+10 =62+x-12 $$$$3x+10 =50+x$$$$3x+10-10 =50+x-10$$$$3x=40+x$$$$3x-x=40+x-x$$$$2x=40$$$$x=20$$$$m∠RKS=x-12 m∠PKS=3x+10$$$$m∠RKS=20-12 m∠PKS=3\*20+10$$$$m∠RKS=8 m∠PKS=60+10$$$$m∠RKS=8 m∠PKS=70$$ |

**Find the indicated angle measures.**

|  |  |  |
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| **18.** | **If** $ \vec{DN} $**bisects**$ ∠FDS$ **and** $m∠FDS=104$ **, find** $ m∠FDN$ **and** $ m∠NDS.$$ S N$$ $$ D F$  | $$m∠FDS=104 $$$$m∠FDN=? m∠NDS=? $$$$m∠FDS=m∠FDN+m∠NDS$$$$m∠FDN=m∠NDS$$$$m∠FDS=2\*m∠NDS $$$$m∠NDS=\frac{m∠FDS}{2}$$$$m∠NDS=\frac{104}{2}$$$$m∠NDS=52 $$$$m∠FDN=m∠NDS$$$$m∠FDN=52$$ |
| **19.** | **If** $ \vec{BC} $**bisects**$ ∠ABD$ **and** $m∠ABC=51$ **, find** $ m∠ABD$ **and** $ m∠CBD.$$$ D $$$ C$$ $$ B A$  | $$m∠ABC=51 $$$$m∠CBD=? m∠ABD=? $$$$m∠CBD=m∠ABC$$$$m∠CBD=51$$$$m∠ABD=m∠ABC+m∠CBD$$$$m∠ABD=51+51$$$$m∠ABD=102$$ |

**Find the value of** $x$ **and then the indicated angle measures.**

|  |  |  |
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| **20.** | **If** $ \vec{ON} $**bisects**$ ∠FOL$ **and** $m∠FOL=4x-10$**,** $m∠FON=x+30, $**find**$ m∠FON, m∠FOL and m∠NOL.$$ L N$$(x+30)°$$ O F$  | $$m∠FOL=4x-10 m∠FON=x+30 $$$$m∠FON=? m∠FOL=? m∠NOL=? $$$$m∠FOL=m∠FON+m∠NOL$$$$m∠FON=m∠NOL$$$$m∠FOL=2\*m∠FON $$$$4x-10 =2\*\left(x+30\right)$$$$4x-10 =2x+60 $$$$4x-10+10 =2x+60+10 $$$$4x=2x+70$$$$4x-2x=2x-2x+70$$$$2x=70$$$$x=35$$$$m∠FON=x+30 m∠FOL=4x-10 $$$$m∠FON=35+30 m∠FOL=4\*35-10 $$$$m∠FON=65 m∠FOL=140-10$$$$m∠NOL=m∠FON m∠FOL=130$$$$m∠NOL=65$$ |