Extra Credit/Make-up Work Packet **GEOMETRY**

**USE YOUR OWN PIECE OF PAPER TO SOLVE**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Determine the value of *x*. |  | A is the midpoint of . *CA* = ? |
|  | , *CD* = ? |  | *MN* = ? |
|  | R is the midpoint of . *PS* = 4*x* – 4, and  *PR* = *x* + 9. *PS* = ? |  | M is the midpoint of . *MN* = 4*x* – 6,  *LN* = 8*x* – 10, and *LM* = 2*x* + 8. *LM* = ? |
|  | *x* = ? |  | *x* = ? |
|  | bisects . , and . |  | *H* is the midpoint of . *GH* = 9*x* – 2, and  *GK* = 19*x* – 7. *HK* =? |
|  | goes through . ,  and . |  | *P* is on . *NP* = 5*x* – 1, *PO* = 3*x* + 2, and  *NO* = 10*x* -3. *PO* = ? |
|  | *M* is between *L* and *N*. *LN* = 8*x*, *LM* = 3*x* + 5, and *MN* = 4*x* + 6. *LM* = ? |  | *N* is between points *A* and *T*. *AN* = 4*x* – 7,  *NT* = 3*x* + 5, and *AT* = 6*x* + 8. *NT* =? |
|  | *F* is the midpoint of . *EF* = 5*x* + 6 and  *FG* = 7*x* – 8. *EF* = ? |  | bisects .  and . |
|  | *T* is the midpoint of . *ST* = 4*x* and *SV* = 9*x* – 6. *SV* = ? |  | bisects .  and . |
|  | *x* = ? |  | goes through . , , and . |
|  | *H* is the midpoint of segment *FG*. *FH* = *x* – 4 &  *HG* = 3*x* – 16. *FG* = ? |  | bisects . , and . |
|  | *P* is on segment *NR*. *NP* = 4x + 7, *NR* = 6*x* + 12, and *PR* = 3*x* – 1. *NP* = ? |  | *,* , and . |
| 1. \* | What property or postulate is shown below?  *x = 4, so 2x = 2(4)* |  |  |
|  | 1. *x* = ? |  | 1. *x* = ? |
| 1. \* | Complete the proof.   |  |  | | --- | --- | | p || q | Given | |  | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | 1. \* | Complete the proof.   |  |  | | --- | --- | |  | Given | | p || q | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| 1. \* | Complete the proof.   |  |  | | --- | --- | | p || q | Given | |  | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |  | *x* = ? |
|  | goes through . , and . |  | *R* is the midpoint of segment *QS*. *QR* = 2*x* + 7 &  *RS* = 5*x* – 14. *QS* = ? |
|  | goes through . ,  and . | 1. \* | What property or postulate is shown below?  *AB* + *BC* = *AC* |
|  |  |  |  |
|  | Determine the measure of *x*. | 1. \* | Determine the value of *x*. |
|  | Determine the value of *x*. | 1. \* | Complete the proof.   |  |  | | --- | --- | | Statements | Reasons | | 1 and 2 are corresponding angles | Given | | 12 | Given | | *r* || *s* | \_\_\_\_\_\_\_\_\_\_\_?\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | bisects .  = 3*x* + 1 and  = 7*x* – 15.  = ? |  | *R* is between *Q* and *S*. *QS* = 9*x* – 4, *QR* = 2*x* + 3, and  *RS* = 5*x* + 5. *QS* = ? |
|  | Determine the measure of *x*. |  | Determine the value of *x*. |
|  | Determine the value of *x*. |  | Determine the value of *x*. |
| 1. \* | What property proves the triangles are congruent? | 1. \* | What property proves the triangles are congruent? |
| 1. \* | What property proves the triangles are similar? | 1. \* | What property proves the triangles are similar? |
|  | *B* is the midpoint of *A* and *C*. *AB*= 5*x* – 3, and  *AC* = 8*x* + 4, and *BC* = ? |  | N is the midpoint of segment *MP*. *M*(2, 7) and  *P*(8, 11). What are the coordinates of *N*? |
| 1. \* | Complete the proof.   |  |  | | --- | --- | | Statements | Reasons | |  | Given | |  | \_\_\_\_\_\_\_?\_\_\_\_\_\_\_\_\_ | |  | Sean folded the triangular piece of paper below. Determine the value of *x*. |
|  | *ACD KMN.* Determine the value of *x*. |  | *LMN PQR.* The similarity ratio is . *x* = ? |
| 1. \* | What property, if any, proves the triangles congruent? |  |  |
|  |  |  |  |
|  | *R* is the midpoint of . *QR* = 6*x* – 2 and  *RS* = 4*x* + 8. *QS* = ? |  |  |
|  |  |  | What fraction does equal? |
|  |  |  |  |
|  |  |  | *S* is the midpoint of segment *RT*. *RT* = 9*x* – 3 and *ST*= 3x + 6. *RS* = ? |
|  |  |  |  |
|  | ? |  | = ? |
|  | *MN* = ? |  | *QS* = ? |
|  | *x* = ? |  | ; AB = ? |
|  | *x* = ? |  |  |
|  | *AB* = ? |  |  |
|  | *F* is on. *EF* = 9, *FG* = 12. *EG* = ? |  | *D* is between *C* and *E*. *CE* = 5*x* – 4, *CD* = 2*x* + 3, and *DE* = 2*x* + 5. *CE* = ? |
|  | *M* is on . *LN* = 19*x* + 6, *MN* = 12*x* + 8, and *LM* = 2*x* + 3. *MN* = ? |  | goes through .  and . |
|  | goes through . , and . |  | *M* is the midpoint of the segment. *MY* = ? |
|  | *L* is the midpoint of . *KL* = 3*x* + 1 and *LM* = 5*x* – 5. *KM* = ? |  | *S* is the midpoint of . *RS* = 5*x* – 3 and *RT* = 12*x* – 10. *RT* = ? |
|  | bisects. |  | *EF* = ? |
|  | bisects .  and . |  | bisects .  and . |
|  | *A* is between *C* and *M* *CA* = 3*x* + 4, *AM* = 2*x* – 2, and *CM* = 6*x* – 8. *AM* = ? |  | bisects *. ,* and *.* |
| 99  –  103.  \* | Given:  and  are vertical angles.  and  Prove:   |  |  | | --- | --- | | & | Given | | and  are vertical | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_** | |  | Def. Vertical Angles | |  | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_** | |  | Substitution Prop. = | | *x* – 5 = 2 | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_** | | *x* = 7 | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_** | |  | Substitution Prop. = | |  | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_** | | 104  –  108.  \* | Given: *G* is between *F* and *H*. *FH* = 5*x* + 3,  *FG* = 2*x* + 9, and *GH* = *x* + 2.  Prove: *FG* = 17   |  |  | | --- | --- | | *FG* + *GH* = *FH* | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | *FH* = 5*x* + 3, *FG* = 2*x* + 9,  and *GH* = *x* + 2 | Given | |  | Substitution | |  | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |  | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | 8 = 2*x* | Subtr. Prop. = | | 4 = *x* | Division Prop. = | | *x* = 4 | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | *FG* = 2(4) + 9 | 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | *FG* = 8 + 9 | Simplify | | *FG* = 17 | Simplify | |
|  | B is the midpoint of AC. AB = 8x – 2 and  BC = 7x + 3. AC = ? |  | K is between J and L. JL = 9x – 3, JK = 2x + 12, and KL = 4x – 3. JL = ? |
|  | Ray *AT* goes through *PAN*. *PAN* = (32x - 10)˚, *PAT* = (4x + 25)˚, *TAN* = (16x + 1)˚.  *PAT* = ? |  | Ray *OA* bisects *BOT*. *BOA* = (5x – 12)o and *AOT* = (3x + 6)o, *BOT*=66 o. *x* = ? |
|  | Determine the measure of x. |  | Determine the measure of y. |
| \* | Complete the proof.   |  |  | | --- | --- | | 1 and 2 are a linear pair. | Given | | 1 + 2 = 180 o | \_\_\_\_\_\_\_\_\_\_\_\_\_ | | \* | Complete the proof.   |  |  | | --- | --- | | *m*3 = 30˚ & *m*3 + *m*4 = 180˚ | Given | | 30˚ + *m*4 = 180˚ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | APE = ? |  | FIJ = ? |
|  | KIT = ? |  | SIM = ? |
| \* | Given:  Prove:     |  |  | | --- | --- | | **Statements** | **Reasons** | |  | Given | |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | \* | Given:  Prove:     |  |  | | --- | --- | | **Statements** | **Reasons** | |  | Given | |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | *M* is between *L* and *N*. *MN* = 6*x* + 2,  *LM* = 2*x* + 3, and *LN* = 9*x* – 4. *MN* = ? |  | bisects .  and . |
|  | *x* = ? |  | *x* = ? |
|  | *L* is between *K* and *M*. *KM* = 6*x* – 2, *LM* = 2*x* + 4, and *KL* = 3*x* + 6. *KL* = ? |  | *x* = ? |
|  | *x* = ? |  | *x* = ? |
|  | Determine . |  |  |
|  | *x* = ? |  |  |
|  | . *MN* = ? |  | *x* = ? |
| \* | The triangles below are congruent by what property? | \* | The triangles below are congruent by what property? |
| \* | If *L* is the midpoint of segment *KM*, then the triangles are congruent by what property? | \* | The triangles below are similar by what property? |
| \* | The triangles below are similar by what property? |  | *x* = ? |
|  | *x* = ? |  | *x* = ? |
|  | *x* = ? |  | Determine the area of the triangle. |
|  | Two angles of a triangle are 51˚ and 63˚. Determine the measure of the third angle. |  |  |
|  |  |  |  |
|  |  |  |  |
|  | *x* = ? |  | ; AB = ? |
|  | *x* = ? |  |  |
|  | *NP* = ? |  |  |
|  | *M* is on . *LM* = 5, *LN* = 12. *MN* = ? |  | *R* is between *Q* and *S*. *QR* = 8*x* + 7, *QS* = 12*x* – 3, and  *RS* = 2*x* + 4. *QR* = ? |
|  | *T* is on . *ST* = 9*x* + 1, *TV* = *x* + 5, and  *SV* = 12*x* – 4. *ST* = ? |  | goes through .  and . |
|  | goes through . , and . |  | *Q* is the midpoint of . *PQ* = 10*x* and *QR* = 8*x* + 4.  *PR* = ? |
|  | *D* is the midpoint of . *CE* = 12*x* – 8 and *CD* = 4*x* + 4. *CD* = ? |  | *A* is the midpoint of the segment. *AT* = ? |
|  | bisects. |  | Determine the measure of y. |
|  | bisects .  and . |  | bisects .  and . |
|  | *H* is between *T*  and *E*. *TH* = 5x – 2,  *TE* = 7x + 4, and *HE* = x + 12. *TE* = ? |  | bisects *. ,* and *.* |
|  | *CD* = ? |  | Determine the measure of x. |
| 175  –  179.  \* | Given:  and  are a linear pair.  and  Prove:   |  |  | | --- | --- | | and | 1. **\_\_\_\_\_\_\_** | | and  are a linear pair | Given | |  | 1. **\_\_\_\_\_\_\_** | |  | 1. **\_\_\_\_\_\_\_** | | 10*x* + 60 = 180˚ | Simplify | | 10*x* = 120˚ | 1. **\_\_\_\_\_\_\_** | | *x* = 12˚ | Div. Prop. = | |  | 1. **\_\_\_\_\_\_\_** | |  | Simplify | | 180  –  184.  \* | Given:  goes through . ,  , and .  Prove:   |  |  | | --- | --- | |  | 1. **\_\_\_\_\_\_\_\_\_\_\_** | |  | Given | |  | 1. **\_\_\_\_\_\_\_\_\_\_\_** | |  | 1. **\_\_\_\_\_\_\_\_\_\_\_** | |  | 1. **\_\_\_\_\_\_\_\_\_\_\_** | | 16 = *x* | Add Prop. = | | *x* =16 | 1. **\_\_\_\_\_\_\_\_\_\_\_** | |
|  | *B* is the midpoint of segment *AC*. *AB* = 4x + 3 and *BC* = 7x – 15. *AC* = ? |  | *K* is between *J* and *L*. *JL* = 7x – 6, *JK* = x + 7, and  *KL* = 3x – 1. *JL* = ? |
|  | Ray *AT* goes through PAN.  PAN = (25x – 5)˚, PAT = (12x + 10)˚, TAN = (8x + 5)˚. PAT = ? |  | Ray OA bisects BOT. BOA = (2x + 10)o and  AOT = (3x – 15)o, BOT=120 o. x = ? |
|  | Complete the proof.   |  |  | | --- | --- | | 1 and2 are supplementary. | Given | | 1 + 2 = 180 o | \_\_\_\_\_\_\_\_\_ | |  | Complete the proof.   |  |  | | --- | --- | | 3 = 4 | Given | | 3  4 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | QRS = ? |  | FGH = ? |
|  | ABC = ? |  | DEF = ? |
|  | Given:  Prove:     |  |  | | --- | --- | | **Statements** | **Reasons** | |  | Given | |  | \_\_\_\_\_\_\_\_\_\_\_\_\_ | |  | Given:  Prove: m<3 + m<4 = 180˚     |  |  | | --- | --- | | **Statements** | **Reasons** | |  | Given | | m<3 + m<4 = 180˚ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | L is between *K* and *M*. *KM* = 4*x* – 7,  *LM* = *x* + 1, and *KL* = 2*x* + 3. *KM* = ? |  | bisects .  and . . |
|  | *x* = ? |  | *x* = ? |
|  | *x* = ? |  | *x* = ? |
|  | Determine . |  |  |
|  |  |  |  |
|  | . *AB* = ? |  | *x* = ? |
| \* | The triangles below are congruent by what property? | \* | The triangles below are congruent by what property? |
| \* | If *R* is the midpoint of segment *QS*, then the triangles are congruent by what property? |  | The triangles below are similar by what property? |
| \* | The triangles below are similar by what property? |  | *x* = ? |
|  | *R* is between *Q* and *S*. *QR* = 4*x* – 7,  *QS* = 8*x* – 9, and *RS* = 2*x* + 4. *QR* = ? |  | *x* = ? |
|  | *x* = ? |  | *x* = ? |
|  | *x* = ? |  | Determine the area of the triangle. |
|  | Two angles of a triangle are 37˚ and 45˚. Determine the measure of the third angle. |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  | . |
|  | If the similarity ratio is , then |  | If the similarity ratio is , what is *AB*? |
|  | and . |  | and . |
|  | and . |  | and . |
|  |  |  |  |
|  |  |  |  |
|  | Determine the midpoint of . and . |  | Determine the distance of the segment with endpoints & . |
|  | Use slope to determine if are parallel, perpendicular, or neither. . |  | Use slope to determine if are parallel, perpendicular, or neither. . |
|  | Determine the midpoint of and . |  | Determine the midpoint of . and. |
|  | Determine the distance of the segment with endpoints & . |  | Determine the distance of the segment with endpoints & . |
|  | Determine the midpoint of and . |  | Determine the distance of the segment with endpoints & . |
|  | On , |  | On , |
|  |  |  |  |
|  |  |  |  |
|  | goes through . , , and . |  | . |
|  |  |  | and are a linear pair.  . |
|  | and are vertical angles.  . |  |  |
|  | and . |  | and . |
|  | *E* is on . *DE* = 6*x* – 5, *DF* = 15*x* – 19, and  *EF* = 7*x* + 6. *DF* = ? |  |  |
|  | goes through. , , and . |  | bisects . |
|  | *B* is on .  . *AB* = ? |  |  |
|  | *L* is the midpoint of .  . *EK* = ? |  | bisects . |
|  | *N* is the midpoint of |  | bisects |
|  |  |  |  |
|  | and are supplementary angles.  . |  |  |
|  | and are supplementary angles. |  | are supplementary angles. |
|  | and are complementary angles.  and . |  | and are complementary angles. |
|  | In the diagram below, AD = 760 miles, CD = 340 miles, and *C* is the midpoint of . Find *AB*. |  | and . Find . |
|  | Complete the two-column proof.  **Given:** and are a linear pair.  **Prove:** = 74˚   |  |  | | --- | --- | | **Statements** | **Reasons** | | 1. & are a linear pair. | 1. Given | | 2. | 2. [?] | | 3. | 3. Subst. Prop. = | | 4. | 4. Subtr. Prop. = | |  | Complete the two-column proof.  Given:  Prove:     |  |  | | --- | --- | |  | Given | |  | Segment Addition | |  | Segment Addition | |  | [?] | |  | Subtraction Property of Equality | |
|  | Find . |  | Find . |
|  | mABC = 62° and mCBD = 36°.  Find mABD. |  | PQRLMR and mM = 42˚, find mPRQ. |
|  | Find mPQR. |  | Find mABC. |
|  | Find the values of *x* and *y*. Express your answers in simplest radical form. |  | Laura folded a triangular sheet of paper into the shape shown. Find m*NLO*, given m*LON* = 50°,  m*ONP* = 35°, and m*NMP* = 85°. |
|  |  |  | Find the length of the line segment with endpoints  (-2, 5) and (1, 11). Write your answer in the simplest radical form. |
|  | Find mPQR. |  | In the diagram below, LJ = 520 miles, LG= 185 miles and H is the midpoint of. Find GH. |
|  | Find the coordinates of the midpoint of  with endpoints *P*(4, 6) and *M*(9, -4). |  | Find the coordinates of the midpoint of  with endpoints *A*(1, 5) and *M*(-3, 9). |
|  | Find the length of the line segment with endpoints (-2, 8) and (4, 12). Write your answer in the simplest radical form. |  | *G* is the midpoint of . *G* has coordinates (4, 1) and *H* has coordinates (3, 6). What are the coordinates of *F*? |
|  | What is mBGU? |  | Frank folded a triangular sheet of paper into the shape shown. Find m*RAW*, given m*LCR* = 85°,  m*CRL* = 55°, and m*ARW* = 80°. |
|  | mABD = 107° and mCBD = 49°. Find mABC. |  | and . Find . |
|  | In the diagram below, RC = 450 miles, VC = 50 miles, and *A* is the midpoint of . Find AV. |  | Find . |
|  | Find . | \* | Identify the angle that is same side interior to . |
|  | Find . |  | What postulate or theorem, *if any*, can be used to prove that *KNLMNL*? |
|  | Simone folded a triangular sheet of paper into the shape shown. Find . |  | What is ? |
|  | Given that *PQR* *TSR*, , and , find . |  | What postulate or theorem will prove that  *STWVTW*? |
|  | Determine . |  | Determine the value of *x*. |
|  |  |  | *DEF ~ LMN*. If the similarity ratio is , what is *MN*? |
|  | Write the trigonometric ratio and solve for *x*. |  | Write the trigonometric ratio and solve for *x*. |
|  | Approximately how long is the building’s shadow (round to the nearest tenth)? |  | Approximately how long is the tree’s shadow (round to the nearest tenth)? |
|  | A ranger spots a fire from the top of a watchtower that is 300 ft tall. If the angle of depression from the top of the watchtower to the fire is 39˚, what is the horizontal distance between them? Round to the nearest foot. |  | A man spots the plane from the ground at an angle of elevation of 43˚. If the plane is traveling at an altitude of 2500 ft, what is the horizontal distance between the man and the plane? Round to the nearest foot. |
|  | Determine the length of *PR*. Round to the nearest hundredth. |  | Determine the length of *TV*. Round to the nearest hundredth. |
|  | In the given triangle, *AB* = 6 and *BC* = 4.    Determine tan*B*. |  | In the given triangle, *PQ* = 2 and *QR* = 5.    Determine sin*R*. |
|  | *EF* = ? |  | 1. *x* = ? |
|  | Determine . |  | 1. Determine |
|  | and are vertical angles. . |  | and are a linear pair. . |
|  |  |  |  |
|  | *B* is in the interior of . |  | *R* is on .  . *RS* = ? |
|  | *M* is the midpoint of .  . *DE* = ? |  | bisects . |
|  | bisects . |  | *L* is the midpoint of .  . *LM* = ? |
|  | and are complementary angles. . |  | . |
|  | *EF* = ? |  |  |
|  | *N* is the midpoint of |  | goes through |
|  | bisects |  | and are supplementary angles. |
|  | and are complementary angles. |  | *B* is on |
|  |  |  |  |
|  |  |  |  |
|  | Use slope to determine if are parallel, perpendicular, or neither. . |  |  |
|  | Determine the midpoint of |  | Determine the distance between . |
|  |  |  |  |
|  |  |  | Determine |
|  | goes through .  and . |  | *G* is the midpoint of .  . |
|  |  |  |  |
|  | Determine the midpoint of . & |  | and are complementary angles.  , . |
| \* | Which property makes the triangles congruent?  If they are not congruent, write “none.” |  | Which property makes the triangles congruent?  If they are not congruent, write “none.” |
|  | . Determine . |  | Which property makes the triangles similar?  If they are not similar, write “none.” |
|  | . , and . |  | . If the similarity ratio is then |
|  | . |  | *CD* = ? |
|  | *x* = ? |  | Determine . |
|  | Determine . |  |  |
|  | and are vertical angles.  . |  | and are a linear pair.  . |
|  |  |  | *P* is in the interior of . |
|  | *B* is on .  . *AB* = ? |  | *M* is the midpoint of .  . *DM* = ? |
|  | bisects . |  | bisects . |
|  | *L* is the midpoint of .  . *EK* = ? |  | and are supplementary angles.  . |
|  |  |  |  |
|  |  |  | *R* is on |
|  | *E* is the midpoint of |  | goes through |
|  | bisects |  | and are complementary angles. |
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|  | and are supplementary angles. |  | Use slope to determine if are parallel, perpendicular, or neither. . |
|  | Determine the midpoint of |  | Determine the distance between . |
|  |  |  |  |
|  |  |  | and are complementary angles.  , . |
|  | *C* is on . and  . |  | bisects .  . |
|  |  |  |  |
|  | Determine | \* | Which property makes the triangles congruent? If they are not congruent, write “none.” |
|  | . Determine . |  | Which property makes the triangles similar?  If they are not similar, write “none.” |
|  | . |  | . If the similarity ratio is then |
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