

Objective: SWBAT solve for missing parts of right triangles using trigonometry.
 Kickoff- Directions: Answer each of the following questions.

1) Complete the square: $x^2 - 4x - 22 = 0$
 $x^2 - 4x = 22$
 $x^2 - 4x + 4 = 22 + 4$
 $(x-2)^2 = 26$
 $x-2 = \pm\sqrt{26}$
 $x = 2 \pm \sqrt{26}$

2) Find $f^{-1}(x)$ of $f(x) = 3x - 5$
 $y = 3x - 5$
 $x = \frac{y+5}{3}$
 $f^{-1}(x) = \frac{x+5}{3}$

3) Simplify: $5\sqrt{27} + 6\sqrt{3} - 4\sqrt{48}$
 $5 \cdot 3\sqrt{3} + 6\sqrt{3} - 4 \cdot 4\sqrt{3}$
 $15\sqrt{3} + 6\sqrt{3} - 16\sqrt{3}$
 $5\sqrt{3}$

4) Solve for x: $\sqrt{5x+1} - 6 = 0$
 $\sqrt{5x+1} = 6$
 $5x+1 = 36$
 $5x = 35$
 $x = 7$

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SOH CAH TOA
 Find the value of each trigonometric ratio as fractions in their simplest form.

1) $\tan A$

 $\tan A = \frac{32}{24} = \frac{4}{3}$

2) $\sin X$

 $\sin X = \frac{15}{25} = \frac{3}{5}$

3) $\cos A$

 $\cos A = \frac{40}{50} = \frac{4}{5}$

4) $\tan Z$

 $\tan Z = \frac{14}{48} = \frac{7}{24}$

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Find the missing side. Round answers to the nearest tenth.

5)
 $\tan 54^\circ = \frac{x}{12}$
 $x = 12 \tan 54^\circ$
 $x = 16.516$
 $x = 16.5$

6)
 $\sin 58^\circ = \frac{x}{18}$
 $x = 18 \sin 58^\circ$
 $x = 16.516$
 $x = 16.5$

7)
 $\sin 31^\circ = \frac{x}{16}$
 $x = 16 \sin 31^\circ$
 $x = 8.17$
 $x = 8.2$

8)
 $\cos 66^\circ = \frac{x}{14}$
 $x = 14 \cos 66^\circ$
 $x = 5.7$

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9)
 $\cos 68^\circ = \frac{15}{x}$
 $x = \frac{15}{\cos 68^\circ}$
 $x = 38.5$

10)
 $\sin 35^\circ = \frac{x}{10}$
 $x = 10 \sin 35^\circ$
 $x = 5.9$

11)
 $\cos 33^\circ = \frac{x}{16}$
 $x = 16 \cos 33^\circ$
 $x = 13.3$

12)
 $\sin 45^\circ = \frac{x}{17}$
 $x = 17 \sin 45^\circ$
 $x = 12.0$

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Find the measure of the indicated angle to the nearest degree.

13)
 $\tan A = \frac{13}{21}$
 $A = \tan^{-1} \left(\frac{13}{21} \right)$
 $A = 31.7^\circ \rightarrow 32^\circ$

14)
 $\sin A = \frac{13}{20}$
 $A = \sin^{-1} \left(\frac{13}{20} \right)$
 $A = 40.5^\circ \rightarrow 41^\circ$

15)
 $\sin A = \frac{5}{11}$
 $A = \sin^{-1} \left(\frac{5}{11} \right)$
 $A = 24.4^\circ \rightarrow 24^\circ$

16)
 $\cos A = \frac{4}{5}$
 $A = \cos^{-1} \left(\frac{4}{5} \right)$
 $A = 36.9^\circ \rightarrow 37^\circ$

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17)
 $\cos A = \frac{13}{23}$
 $A = \cos^{-1} \left(\frac{13}{23} \right)$
 $A = 55.9^\circ \rightarrow 56^\circ$

18)
 $\sin A = \frac{13}{43}$
 $A = \sin^{-1} \left(\frac{13}{43} \right)$
 $A = 17.3^\circ \rightarrow 17^\circ$

19)
 $\cos A = \frac{48}{57}$
 $A = \cos^{-1} \left(\frac{48}{57} \right)$
 $A = 32.8^\circ \rightarrow 33^\circ$

20)
 $\sin A = \frac{48}{25}$
 $A = \sin^{-1} \left(\frac{48}{25} \right)$
 $A = 110.3^\circ \rightarrow 110^\circ$

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